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ENCYCLOPÆDIA AMERICANA.

A

POPULAR DICTIONARY

OF

ARTS, SCIENCES, LITERATURE, HISTORY, POLITICS, AND BIOGRAPHY,

BROUGHT DOWN TO THE PRESENT TIME;

INCLUDING

A COPIOUS COLLECTION OF ORIGINAL ARTICLES

IN

AMERICAN BIOGRAPHY;

ON

THE BASIS OF THE SEVENTH EDITION OF THE GERMAN

CONVERSATIONS-LEXICON.

EDITED BY

FRANCIS LIEBER,

ASSISTED BY

E. WIGGLESWORTH AND T. G. BRADFORD.

Vol. XIII.

NEW EDITION.

Philadelphia:
THOMAS, COWPERTHWAIT, & CO.

1838.

KF 545

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NOTICE.

At the commencement of this Encyclopædia, it was announced that it would be completed in twelve volumes; but, owing to the great difficulty of accommodating the length and number of so multifarious a collection of articles to the proposed limits, it was found, on approaching the end of the work, that it would be impossible strictly to adhere to these limits, without so curtailing what remained, as to make this disproportionate to the preceding parts. Under these circumstances, it became indispensable to publish a thirteenth volume; and we have taken the opportunity thus afforded to furnish a number of supplementary articles. In addition to these, the reader will find, in the Appendix, at the end of this volume, many references to articles already given. In the preparation of a work including so great an extent of subjects, it could not always be anticipated what variety of topics would be treated under particular heads; and it was thought, on examination, that the reader would be much assisted, in consulting the work, by our furnishing a considerable number of additional references.

In preparing this Encyclopædia, the conductors have endeavored to obtain the best materials and the best assistance within their power. Their labors have been lightened by the kind contributions which they have received from various quarters. To the Hon. Judge Story, and to John Pickering, Esq., of Boston, they are under peculiar obligations. The longest and most elaborate articles in the law department are from the pen of the former gentleman; and it is needless to say how much these add to the value of the work. From Mr. Pickering they have received, in a variety of ways, the most important aid. They are also indebted for valuable contributions, or favors of other kinds, to numerous other gentlemen, among whom they may be permitted to mention Mr. Duponceau, of Philadelphia; Mr. Woodbridge, editor of the Annals of Education; James E. Heath, Esq., of Richmond, Virginia; Gov. Marcy, B. F. Butler, Esq., and Dr. Beck, of Albany; Rev. Professor Palfrey, of Cambridge, Massachusetts; Mr. De Schweinitz, of Bethlehem, Pennsylvania; Samuel A. Eliot, Esq., of Boston; Gov. Cass, and Mr. Brush, of Michigan; Gen. Dearborn, of Roxbury, Massachusetts; Mr. James K. Paulding, of New York; Hon. Nathan Appleton, and Professor Ticknor, of Boston; Mr. Roberts Vaux, and Mr. Thomas Evans, of Philadelphia; Rev. Frederic A. Farley, of Providence, Rhode Island; Dr. Walter Channing, of Boston; Dr. Dewees, of Philadelphia; and the late Hon. Charles Ewing, chief justice of New Jersey. The friendly aid received from these and other gentlemen is most gratefully acknowledged.

Boston, Feb. 1, 1833.

ENCYCLOPÆDIA AMERICANA.

Visigoths. The powerful confederacy of nations under the name of *Goths* (q. v.), was, at an early period, geographically divided into *Ostrogoths*, who had their seats on the Pontus, and *Visigoths*, who inhabited Dacia. About the middle of the fourth century, the two nations separated into distinct political bodies. The Ostrogoths, weakened by this separation, having submitted to the Huns, the Visigoths fled to the mountains, and soon after obtained from the Romans permission to settle in the desolated Thrace. The relation of the nations to each other was by this means essentially changed. Under the name of allies, the Goths formed a chief part of the Roman army; but they became hostile whenever the promises made them were violated; and scarcely was Theodosius dead, and the empire divided, when the Visigoths, under Alaric, broke forth upon Italy, and Rome fell, in 410, into the power of the Visigoths. Alaric, had he not been overtaken by death, when on the point of conquering Africa, would have founded a Germanic empire in Italy. His brother-in-law Athaulf (Ataulphus), who was placed at the head of the nation, abandoned Alaric's projects, and turned towards Gaul, to make new conquests on both sides of the Pyrenees. He reached Barcelona, where he was murdered, in 415; but his successors, in the midst of perpetual conflicts with the previous occupants and with the Romans, founded in the south of France and in Spain the kingdom of the Visigoths. The unnatural extension of this kingdom to the north of the Pyrenees, where even the capital, and the residence of the king, Toulouse, was situated, while the Suevi still maintained their independence on the Peninsula, was one of the causes of its internal weakness. Another cause was the difference in the religious doctrines of the conquerors and the conquered, the former professing the Arian doctrines (see *Arians*), which were detestable to the Catholic descendants of the Roman settlers. This circumstance gave rise to a strict separation between the Goths and Romans, and caused the Catholic clergy to become more firmly attached to each other and to Rome. Notwithstanding this, and notwithstanding the convulsions produced by frequent changes of government, and by factions, the kingdom of the Visigoths, in the first century of its existence, continued to extend itself even beyond the Pyrenees, and, by political regulations, obtained internal consistency. Euric, the fifth king, who, from 466 to 483, during the total decline of the Roman empire, made great conquests in Spain and Gaul, gave the Visigoths, who had previously been governed by customary laws, written statutes, which were extended by his successors, and reduced to a system (see Lindenbrog's *Codex Legum Antiquarum*, and Canciani's *Barbarorum Leges Antiquæ*), which is the most complete of all the German codes, and exhibits jurisprudence in a state of great advancement. His successor, Alaric, gave also to his Roman subjects in Gaul a system of laws, which he caused to be compiled, by persons well versed in jurisprudence, from the Theodosian code, from the enactments of the later emperors, and other sources, in order that the provinces might retain their ancient laws, but that the obligatory force of the law might proceed from his own authority. This code was not abolished till about the middle of the seventh century, till which time the laws of the Visigoths and Romans continued different. But the weakness of the Visigoths became manifest as soon as they came in contact with the Franks on the Loire, when the Catholic Clovis (q. v.), on pretence that it was unjust to let the heretic Visigoths possess the fairest portion of Gaul, attacked the peaceful Alaric, and defeated him at Rouglé, in 507. The Franks obtained possession, without resistance, of most of the cities in southern Gaul, and the kingdom of the Visigoths would have been in great danger, had not Theodoric (q. v.), king of the Ostrogoths, undertaken its defence. While guardian of the Visigothic prince, his grandson, he embraced the favorable opportunity to make himself master of a part of the territories still belonging to the Visigoths in southern Gaul; and, after a long separation of the two nations, there existed, for a time, an intimate connexion of the Ostrogoths and Visigoths. After his death, dissensions soon arose among the Visigoths, and the pernicious influence of the difference of religion between the Arian Visigoths and the Catholic provincials, who were sometimes tolerated, and sometimes persecuted, became more and more evident. The kingdom of the Visigoths arose again with new energy, under the bold and intelligent Leovigild (568—586), who totally subdued the Suevi, improved the laws, limited the power of the nobles, made Toledo the royal residence, and tried to render the regal power hereditary. His equally celebrated son, Reccared, became a convert, in 589, to the Catholic faith; upon which the divisions of the people ceased, and Goths and Spaniards became one nation. His conversion had the most important influence on the character of the government. Scarcely had the Catholic faith become the established religion, when the clergy, who had become accustomed, during their former state of oppression, to adhere firmly together, acquired a predominant influence, such as they obtained in no other Germanic nation, and constituted a hierarchy, totally independent of the Roman papal authority. The Arian bishops had lived quietly in their dioceses, and had no influence on the public administration; but the Catholic bishops strove after an active participation in public affairs, in order to render secure the authority which their church had obtained. The grandees of the kingdom, the secular public ministers and officers of the court (called *viri illustres officii palatini*), who formed a kind of nobility, and as the constitutional counsellors of the king, usurped the rights of popular representatives, remained no longer the first class in the state: the old mode of choosing the king, which had thrown the election into their hands, was altered in favor of the bishops; and under weak kings, who often attained the crown by artifices of the priests, or solicited absolution and justification from the clergy, on account of the usurpation which they had committed, or the oaths which they had violated, they found it easy to place themselves at the head of the state, and to procure exemption from all public burdens. This prevailing influence was especially visible in the ecclesiastical councils, which, in previous times, had discussed merely matters of doctrine or church discipline, but, immediately after the conversion of the sovereign, began to mingle with spiritual affairs matters of a political character. When the clergy had once established their political influence, they could, without reluctance, allow the secular grandees, who came with the king to the councils, to take part in the deliberations, the more particularly as they could always be sure of outvoting them; and, as early as 633, the regulation was made, that those secular grandees alone should be admitted, who should be pronounced worthy of the honor, by the bishops. The internal disturbances, which the excessive power of the clergy produced or favored, facilitated the conquest of the country by the Saracens, who were settled on the north coast of Africa. As early as the year 675, the Mohammedans began their attempts to settle in Spain, encouraged by the factious which convulsed the Visigoths, and which, during the reign of the weak Roderic, enabled them to execute their project. The Goths were defeated, in 711, at Xeres de la Frontera; the king was slain, and the Saracens spread themselves over the greatest part of the country. (See *Spain*.) The remainder of the Goths, who, after the downfall of the empire, had fled to the mountains of Asturia and Galicia, founded there new kingdoms, in which the constitutions of the Visigoths were in part retained, and which, when the descendants of the Goths broke forth from their fastnesses, and wrested from the Moorish settlers one tract after another, finally gave rise to the kingdoms of Spain and Portugal. The traces of the public institutions of the Visigoths were preserved longest in the laws, as the

Christians, on leaving the mountains, brought with them those by which they had been governed. The most ancient collection of Spanish laws, the *Fuero juzgo*, or *Forum Judicum*, is drawn from the ancient laws of the Visigoths; and many of them have been retained to the present day in the provincial law of Castile and Catalonia.—The liturgy of the Visigoths, which was established by the assembly of Toledo, in 633, for the purpose of introducing into all the churches a uniform mode of worship, long survived the downfall of the kingdom. This *officium Gothicum*, as it was termed, which contained many rites and forms that had been used in the Spanish church from the earliest period of Christianity, maintained itself in spite of all the efforts of the popes to introduce the Roman liturgy; and so violent were the disputes to which this gave rise, that an attempt was made to adjust the quarrel by duel and fire-ordeal. Even after the Roman liturgy had been introduced into Castile, as it had previously been into Arragon, several churches in Toledo nevertheless retained their old usages. The Spanish Christians living under the dominion of the Moors, and styled *Mozarabians*, adhered still longer to the Gothic liturgy, which was therefore called *officium Mozarabicum*. Cardinal Ximenes caused the missal and breviary of this liturgy to be printed. The Spanish language also still preserves, in some words, the remains of the Gothic, although the Visigoths, after the conquest of the peninsula of the Pyrenees, adopted the language of the Romans. There is a *Geschichte der Westgothen*, by John Aschbach (Frankfort, 1827).

Vision. (See *Optics*.)

Visions. Ghosts, phantoms, apparitions, spectres, spirits,—for the vocabulary of superstition is rich in terms,—or, in philosophical language, spectral illusions, have, in some ages, played an important part in the machinery of society; nor can it be said that they have yet been laid by the voice of that great exorciser, knowledge. The guilty conscience still evokes the avenging spirits, and the disordered action of the physical functions is sometimes mistaken for the operation of external objects upon the senses. All appearances of this nature may be classed under the two heads of *mental illusions*, and *optical illusions*, the former comprising those cases in which the spectral appearances are produced by the disordered state of the mind, and the latter, those occasioned by the presence of some external object, under such circumstances as to deceive the senses. Thus, in regard to the first, it may be remarked that, in consequence of an extraordinary impression upon the brain, through the medium of the circulation of the blood, sensations are greatly increased in intensity, and ideas in vividness, and that emotions are produced corresponding, in intensity, to the acuteness of the sensations, and the vividness of the ideas. Then, again, the effect of a disordered state of the physical functions is to disturb the order of the succession of ideas, or to influence the velocity of their succession (producing indistinctness of perception, confusion of thought, inaccuracy of judgment, and, of course, a disregard to incongruities), or to increase the vivacity of ideas. The same effects may be produced by a diseased state of the body itself, or by violent mental excitements, influencing the physical functions, which, in turn, react upon the mind. These principles will be found to account for many spectral illusions of which we have authentic accounts. In some instances, it is a transient madness; in others, a permanent mania, under the influence of which the patient labored. In general, it will be observed that the images which constitute the subject of spectral illusions assume the form of figures which have been rendered familiar to the mind, and which have made strong impressions upon it. The sights seen bear a strict relation to the character of the seer, and of the superstitions of the age and country in which he lived. Thus the intelligent and philosophical Nicolai (q. v.) saw nothing but men and women; horses, dogs and birds in their natural form. The illusions of the superstitious consist of demons or angels, and all sorts of fantastic shapes, benign or malignant, according to the peculiar disposition or state of mind of the seer. "Ghosts," says Grose, "commonly appear in the same dress they wore when living, though they are sometimes clothed all in white; but that is chiefly the church-yard ghosts, who have no particular business, but seem to appear *pro bono publico*, or to scare drunken rustics from tumbling over their graves. Dragging chains is not the fashion of English ghosts, chains and black vestments being chiefly the accoutrements of foreign spectres seen in arbitrary governments: dead or alive, English spirits are free." Doctor Abercrombie (Inquiries concerning the Intellectual Powers, 2d ed., Edinburgh, 1831), in treating of spectral illusions, refers them to the following heads:—1. False perceptions, or impressions made upon the senses only, in which the mind does not participate. 2. Real dreams, though the person was not, at the time, sensible of having slept, nor, consequently, of having dreamed. A person under the influence of some strong mental impression, drops asleep for a few seconds, perhaps without being sensible of it; some scene or person connected with the impression appears in a dream, and he starts up under the conviction that it was a spectral appearance. 3. Intense mental conceptions, so strongly impressed upon the mind as, for the moment, to be believed to have a real existence. This takes place when, along with the mental emotion, the individual is placed in circumstances in which external impressions are very slight, as solitude, faint light, and quiescence of body. It is a state bordering closely upon dreaming, though the vision occurs while the person is in the waking state. 4. Erroneous impressions, connected with bodily disease, generally disease in the brain. The illusions, in these cases, arise in a manner strictly analogous to dreaming, and consist of some former circumstances recalled to the mind, and believed, for a time, to have a real and present existence. The diseases, in connexion with which they arise, are generally of an apoplectic or inflammatory character, sometimes epileptic; and they are very frequent in the affection called *delirium tremens*, produced by a continued use of intoxicating liquors. Under each of these heads, the author states a number of interesting facts, illustrative of the general theory.—The second species of illusions, or optical illusions, are occasioned by the state of the atmosphere, producing a reflection or unequal refraction of light, such as the famous gigantic figure called the spectre of the Brocken, aërial troops of horsemen, spectre ships, &c. (see *Optics*), of which phenomena the reader will find descriptions and explanations in Brewster's Natural Magic (London, 1832). Illusions are often also produced by the appearance of objects imperfectly seen in a dim light, and by electric phenomena, when the credulous and terrified observer "sees, or thinks he sees," monstrous shapes flitting around and glaring upon him.—For further information on this interesting chapter in the history of human weakness, see Scott's *Letters on Demonology and Witchcraft*; Thacher's *Essay on Demonology* (Boston, 1831); and particularly Hibbert's *Philosophy of Apparitions* (Edinburgh, 1824).

Vistula (Polish, *Visla*; German *Weichsel*), a river about 500 miles long, navigable from Cracow, which rises in the principality of Teschen, in Austrian Silesia, on the northern declivity of the Carpathian mountains, flows round the territory of Cracow and Gallicia, through the kingdom of Poland, towards the northwest, passes through West Prussia, and divides into two branches, of which the eastern, the Nogat, empties, about two and a half miles from Elbing, into the Frische Haff; the western divides again, about nine miles above Dantzic, into two branches, of which the western flows into the Baltic at Weichselmunde, near Dantzic; the eastern, by many small channels, into the Frische Haff. The Vistula contains numerous and excellent fish: its navigation is very important, as the products of Poland—wood, grain, &c.—are transported on it to Dantzic, on the Baltic. The canal of Bromberg connects the Vistula with the Oder. (q. v.) Several navigable rivers empty into the Vistula.

Vitalians. (See *Apollinarians*.)

Vitellius, Aulus, a Roman, raised by his vices to the throne, was descended from one of the most illustrious families of Rome. The greatest part of his youth was spent at Capreæ, where he labored to gratify the vicious propensities of Tiberius. He passed through all the offices of the state, and gained the soldiery by donations and liberal promises. He was at the head of the Roman legions in Germany when Otho was proclaimed emperor, and was likewise invested with the purple by his soldiers. He accepted the office, and instantly marched against Otho. After losing three battles, he was successful in the plains between Mantua and Cremona. He now gave himself up to luxury and debauchery. He feasted four or five times a day, and was often seen to make himself vomit, to begin his repast afresh. Above thirty million dollars were spent in maintaining his table in the space of four months. This extravagance soon raised the indignation of the people. Vespasian was proclaimed emperor by the army, and his minister Primus was sent to destroy the imperial glutton. Vitellius concealed himself under the bed of the porter of his palace; but he was discovered, and dragged naked through the streets, with his hands tied behind his back. After suffering the greatest insults from the populace, his head was cut off and fixed to a pole, and his mutilated body dragged with a hook and thrown into the Tiber, A. D. 69, after a reign of one year, except twelve days.

Viterbo (anciently *Volturna*); a town of Italy, in the States of the Church, capital of a delegation, formerly capital of the Patrimonio; thirty-four miles northwest of Rome; lon. 12° 6′ E.; lat. 42° 25′ N.; population, 12,600. This city is a bishop's see, and lies in a beautiful and fertile valley: the streets, for the greater part, are broad and well paved, the houses good, but thinly peopled, though the number of churches, convents and hospitals is not less than sixty-nine. Four popes lie interred in the cathedral. Not far from the city is a warm mineral spring.

Vitriol, Green. (See *Copperas.*)

Vitriol, Oil of; the old name for sulphuric acid. (See *Sulphur.*)

Vitruvius Pollio, Marcus; a celebrated writer on architecture, who is supposed to have flourished in the time of Julius Cæsar and Augustus, and of whose parentage and place of nativity no certain knowledge can be obtained. The most probable opinion is, that he was born at Formia, a city of Campania, now called Mola di Gaeta. He plainly appears to have been liberally educated; and that he travelled for information and improvement, we learn from his writings. The only public edifice which he mentions as being constructed from his designs, is a basilica at Fano. He wrote, at an advanced age, his work *De Architectura Lib. X*, which he dedicated to Augustus, under whose reign he had held the office of inspector of the military machines. This treatise was first printed at Venice, 1497, folio; and, among modern editions, the most valuable are those of Schneider (Leipsic, 1808, 4 vols., 8vo.), and of Stratico (Œttingen, 1828, 4 vols.). An English translation of the work of Vitruvius, with a commentary, by William Newton, appeared in 1771, folio, republished 1791, 2 vols., folio; and a new translation, by W. Wilkins, with an Introduction, containing an Historical View of the Rise and Progress of Architecture among the Greeks, was published in 1812, folio.

Vittoria, or Victoria, Fernandez Guadalupe, late president of the Mexican republic, was born at Durango, where his father was a considerable land-holder, in 1790, and had just finished his studies for the bar, in the capital, when the revolution broke out (1810). He immediately espoused the cause of his native land against the Spaniards, and entered the service under Morelos as a volunteer. In 1814, he was appointed captain-general in the province of Vera Cruz—a very important post, as the whole communication with Europe was through the ports of that province. Here Vittoria distinguished himself by his activity and energy, and soon became the terror of the Spanish troops, maintaining an incessant and destructive guerilla war. Notwithstanding the great efforts of the royal commanders, and their great numerical superiority, he sustained a struggle for two years, at the end of which time, his successive losses, and the disastrous state of the revolutionary party in the country, left him without a single follower. Determined not to yield to the Spaniards, and refusing their offers of pardon, promotion and reward, he retired alone into the mountains of the province, with nothing but his sword. For upwards of six months, he was pursued by 1000 men, in small detachments, with such ardor and vigilance that his escapes were often almost miraculous; and wherever it was found that his wants had been relieved, the whole village was immediately burnt to the ground. In this way he was reduced to such extremities, that he often went four or five days without taking any thing but water: for thirty months, he never tasted bread, nor saw a human being. When Mr. Ward, author of Mexico (2d ed., London, 1829), from which we have taken this account, first saw him, in 1823, he was unable to eat above once in twenty-four or even thirty-six hours. On the breaking out of the revolution of 1821, he was found, by a former follower, who came in search of him, but who, far from recognising his commander in the naked phantom, emaciated, and covered with hair, which stood before him, took to flight, and was recalled only by the sounds of his voice. Vittoria, on receiving intelligence of the new state of things, descended to the low country, and immediately found himself at the head of a body of republican troops, attracted by his old reputation. He now joined Iturbide; but, as his wishes were set on the establishment of a liberal government, and not on a change of masters, he was again forced to retire to the mountains, when that general carried into successful execution his ambitious projects, and only reappeared again to give the signal for the overthrow of the emperor. (See *Iturbide*, and *Santa Aña*.) On the expulsion of the emperor, and the establishment of the new constitution, in 1824, Vittoria was chosen the first president of the new republic, and continued to administer the executive government during the term of four years, when Pedraza was chosen his successor. (See *Mexico*, and *Pedraza*.)

Vittoria, Battle of, was fought on June 21, 1813. In the middle of February, 1813, the disastrous state of the French army in Russia was made known to the French troops in Spain, with orders to send whatever forces could be spared to Germany. 30,000 troops set off immediately for that country. Their departure, and Marmont's defeat in the year previous, obliged the French to give up Madrid, and to retire behind the Ebro. Wellington followed, and passed the Ebro, June 15. At last, the two armies met on the great plain of Vittoria (a town in Alava, lon. 2° 41′ W., lat. 42° 47′ N., with a population of 6500, much occupied in the manufacture of sword-blades). The French were commanded by king Joseph and Jourdan. They had on their left a chain of gentle hills, on their right Vittoria, in front the rivulet of Zadora. On the 20th, Wellington united all his columns, and ordered general Hill, on the 21st, to pass over the Zadora at daybreak, and to attack the centre of the French. He was repulsed, but the struggle was obstinate; and general Graham, in the mean time, turned the right wing of the French, and came upon their rear, so that they were cut off from the road to Bilboa, and forced to retreat towards Pampeluna, which they did in the greatest disorder. They had been so certain of victory, that little provision had been made for the case of defeat; and many of the wives of the officers, the whole of Joseph's baggage, &c., fell into the hands of the English. 15,000 dead and wounded lay on the field of battle; 3000 French were taken prisoners. The English took 151 cannons, and 400 wagons with military stores, and the military chest. Their booty was immense. General Clauzel arrived the day after the battle, with two divisions, at Vittoria, and, with great skill, retreated towards Saragossa, so that the pursuit was less destructive than it would otherwise have been, and the remains of the French army were enabled to rally at the foot of the Pyrenees, where Soult put them again in order, and strove to oppose Wellington, who was prevented also, by other circumstances, from following up his victory as he could have wished; since Suchet, after the unsuccessful attempt of general Murray on Tarragona, kept possession of Valencia, and general Maurice Matthieu of Barcelona.

Vitus's Dance, St., or Chorea Sancti Viti (from χορεια, a dance), is a spasmodic or convulsive disease, in which the muscles of the extremities and other parts are thrown into various involuntary motions, and perform, in an irregular manner, those motions which are dictated by the will. The approach of the disease is commonly slow, and is indicated by a loss of the usual vivacity, by a variable and often ravenous appetite, a swelling and hardness in the lower belly, in most cases, but, in some, a lank and soft belly, and, in general, a constipated state of the bowels. Slight, irregular, involuntary motions are soon observed, especially of the muscles of the face, which after a while become more violent. These convulsive motions vary considerably. The muscles of the extremities, and of the face, those moving the lower jaw, the head and the trunk of the body, are, at different times and in different instances, affected by it. In this state, the patient does not walk steadily: his gait resembles jumping or starting: he sometimes cannot walk, and seems palsied; nor can he perform the common motions with the arms. In a word, when he wishes to be at rest, the muscles are perpetually moving, and distorting the limbs, face and trunk; and when any motion is attempted by the will, it is performed irregularly and with difficulty, after several efforts. The convulsive motions sometimes continue even in sleep. In the progress of the disease, articulation becomes impeded, and is frequently completely suspended. Deglutition is also occasionally performed with difficulty. The eye loses its lustre and intelligence; the countenance is pale and expressive of languor. This disease attacks both sexes, but chiefly those who are of a weak constitution, or whose health and vigor have been impaired by confinement, or by the want of sufficient or proper nourishment. It appears most commonly from the eighth to the fourteenth year. Many causes have been assigned for this disorder, such as worms in the alimentary canal, and the repulsion or drying up of cutaneous eruptions; also rheumatisms, acute fevers, diseases of the stomach, the use of mercury, terror, and other strong mental impressions. The remedies which have been adopted belong to the two classes of tonics and evacuants. The connexion of the name of St. Vitus with this disease seems to have originated, during the days of fanaticism and superstition, in the seventeenth century. Gregorius Horstius and Juncker relate that a belief prevailed among the people of Germany, that, by presenting gifts, and dancing before the image of St. Vitus, on his festival, in May, they should live in health and safety during the ensuing year; and that, for this purpose, they repaired to a chapel dedicated to their saint, where they danced night and day, until they were seized with delirium, and fell down in a sort of trance.

Vives, Giovanni Ludovico, one of the revivers of literature, was born at Valentia, in Spain, in 1492, and studied at Paris and Louvain. He then visited England, having previously become one of the first fellows of Corpus Christi college, Oxford. He was patronised by Catharine of Arragon, and, in 1522, dedicated his Commentary upon St. Augustine's *De Civitate Dei* to king Henry VIII. He was also appointed to instruct the princess Mary in polite literature and the Latin language. During his residence at Oxford, he was admitted doctor of laws, and acquired much favor with Henry VIII; but, venturing to write against his divorce from Catharine, he was disgraced and imprisoned. On regaining his liberty, he repaired to Brussels, where he married, and remained, for the rest of his life, as a teacher of the belles-lettres. He died in 1541. His works were printed at Basle in 1555, in 2 vols., folio; but this collection does not include his Commentary on St. Augustine, which was esteemed too bold and free by the Louvain doctors. Among his works are *De prima Philosophia; De Explanatione Essentiarum; De Censura Veri; De Initiis, Sectis et Laudibus Philosophiæ*; and *De corruptis Artibus et tradendis Disciplinis.*

Viviani, Vincent, a celebrated Italian mathematician, was born at Florence, in 1622. From the sixteenth year of his age, he pursued the study of geometry with such diligence and success, that the great Galilei gave him the advantage of his own instructions, and treated him as a son. After Galilei's death, he undertook the restoration of the five books of Aristæus, a celebrated Grecian mathematician, entitled *De Locis solidis*, which were lost, with the exception of the names of the propositions. This labor he, however, discontinued, in order to restore the lost fifth book of the Conic Sections of Apollonius. This work he published in 1659, in folio, under the title *De Maximis et Minimis Geometrica Divinatio in quintum Conicorum Apollonii Pergæi*, which was esteemed superior to Apollonius himself. In 1664, he was honored with a pension from Louis XIV, and, in 1666, the grand duke of Tuscany, who employed him both in public works and in negotiation, gave him the title of his first mathematician. In 1669, he was chosen to fill a chair in the royal academy of sciences of Paris, which honor induced him to finish three books of his Divination of Aristeus, and address them to the king of France (*Divinatio in Aristæum*, 1701). He died in 1703, in the eighty-first or eighty-second year of his age. Fontenelle speaks warmly of the integrity and simplicity of manners of Viviani, who composed several mathematical treatises in the Latin and Italian languages, besides those already alluded to, the principal of which is entitled *Enodatio Problematum* (1677), comprising the solution of three problems which had been submitted to all the mathematicians of Europe.

Vivianite. (See *Iron*, vol. vii, p. 69.)

Vizier is a title of honor with the Turks, belonging to all the pachas of three tails (i. e. the highest pachas). Besides these, there are at Constantinople six viziers, called viziers of the bench (i. e. of the council of state), because they have seats in the divan. Men acquainted with the laws, and such as have already held offices of importance, are chosen for this station; but they have no decisive voice in this council, and cannot give their opinion until the grand vizier asks it. They have small salaries, but are privileged to wear a turban like that of the grand viziers, this being a mark of high distinction with the Turks. They can also affix the name of the sultan to the orders sent into the provinces. The grand vizier (*vizier azem*) stands high above these. He is the representative of the sultan, conducts the deliberations of the divan, and decides alone. He receives a seal at the time of his appointment, on which the sultan's name is engraved, and which he must always wear on his bosom. By this seal, he is authorized to rule, with absolute power, in the name of the grand sultan.

Vliessingen. (See *Flushing*.)

Vocal Music; music produced by the human voice (q. v.) alone, or accompanied by instruments. It is contradistinguished from instrumental music (q. v.), which is produced by instruments alone. The composer of such music must have a thorough knowledge of voices, and their musical effect, their power, and the peculiarities by which the human voice differs so decidedly from instruments. Vocal music has many advantages over instrumental, in the fine blending of the tones, in its endless variety of intonation and expression, and in the support which it derives from its connexion with words. The different forms of vocal music are, the air, arietta, cavatina, and the like; recitativo, duetto, terzetto, quartetto, &c.; the chorus, the song, hymn, &c.; the opera, oratorio, cantata, &c. (See *Music*, division *History of*; see also *Voice*.)

Vogler, George Joseph, a distinguished practical and theoretical musician, was born at Würzburg, in 1749. He studied law, but early showed great talent for playing on the organ, and for composing. The elector of the Palatinate, Charles Theodore, sent him to Italy, about 1773, to study music. In about three years, he returned to Manheim, the residence of his princely patron. In the year 1780, and the following years, he travelled in Germany, France, Holland, Sweden, England, Spain, and (as Gerber says) even in Africa and Greece. In 1786, he was appointed chapel-master to the king of Sweden. In 1790, he was in London, where his performance on the organ was heard with great pleasure. He delivered lectures on music in Stockholm and in Prague. In 1807, he was appointed chapel-master to the grand duke of Hesse-Darmstadt, and remained in Darmstadt until his death, in 1814. He invented a new instrument, called *orchestrion*, in which the tone was determined in quite a new way, by the increase and diminution of the wind; and the sound was increased by a suspended copper vessel. He also invented a mode of simplifying the construction of organs. He wrote various works on music, and likewise composed several pieces for the theatre, symphonies, &c.

Voice is the body of sounds produced by the organs of respiration, especially the larynx of men or animals. It can, therefore, only be found in animals in which the system of respiration is developed, and the lungs and larynx actually exist. Many insects intentionally produce a noise by the motion of their wings, which takes the place of a voice, but cannot be called by this name. The fishes, being deprived of lungs, and breathing through gills, are dumb; but the amphibious animals, which have the lungs and larynx in an imperfect state, have, therefore, a limited voice. In birds, however, in which the lungs are so predominant, and the larynx is double, and some of which (the singing birds) have lamellæ in the bronchiæ, capable of vibration, the voice is fitted for the most varied sounds. The mammalia possess but one larynx; and with them the sound is formed by a strong expiration, whilst the ligaments of the glottis (according to the opinion of Ferrein) vibrate like the strings of an instrument, and produce various sounds, as they are more or less tense; or (according to the opinion of Dodart and Cuvier) form certain cavities, in which the tones are produced, as in wind instruments; or, perhaps, operate in both ways at the same time. But the length of the windpipe, which can be increased or shortened, and the magnitude of the lungs in proportion to the width of the glottis, also contribute much, at least to the strength of the tone. The voice, however, is more influenced by the epiglottis, by the greater or less length of the canal which extends from the glottis to the opening of the mouth, and by all the voluntary modifications which can be there given to the tone. The influence of the nerves of the voice is also to be remarked: if the nerve is cut on one side, the voice becomes weaker, and if cut on both sides, ceases entirely. The positive pole of the galvanic battery affecting the nerve produces high, the negative pole deep, hoarse tones. Liscovius, in his Theory of the Voice (in German, Leipsic, 1814), maintains that the voice is produced by the pressure of the breath through the narrow opening of the windpipe, in a similar way as the tones are produced by the mouth in whistling. According to Gottfried Weber (*Cæcilia*, vol. i, p. 92), the organ of voice, as a sounding membrane, or lamella, acts like the tongue-work in the organ. The uvula has, of course, considerable influence in producing the tones, and is subject to diseases in singers, orators, and others accustomed to great exertion of the vocal organs.* The voice of men and animals is a very interesting subject of inquiry. The tones by which animals express their feelings, the sweet and powerful melodies of the small birds, the tones which convey the ideas and emotions of rational man, and furnish his noblest music, are well fitted to awaken the curiosity of the naturalist, physiologist and philosopher.—For some remarks on the organs of the voice in animals and men, we refer the reader to Blumenbach's *Manual of Comparative Anatomy* (translated by W. Lawrence, revised by Coulson, London, 1827). Respecting the sounds of human language, by the various combinations of which such a variety of words is produced, we will add a few remarks. Besides the lungs, the windpipe, &c., the finely-arched roof of the mouth, and the pliability of the lips (enabling us to give a great variety of forms to the mouth, which are almost the sole means of giving their peculiar character to the different vowels), are of the greatest importance. Under the articles on the separate letters the reader will find an account of the way in which the sounds represented by them respectively are produced. "The modifications of voice, easily made (says Mr. Arnott, in his Elements of Physics), and easily distinguishable by the ear, and, therefore, fit elements of language, are about fifty in number; but no single language contains more than about half of them. They are divisible into two very distinct and nearly equal classes, called *vowels* (q. v.) and *consonants*." (q. v.) In the article *Consonant*, the natural division of words is shown to cease with syllables: they are one sound, and the division into vowels and consonants, ingenious and useful as it is, does not, in fact, exist to the degree which we usually take for granted, from the circumstance of considering them as totally distinct from early childhood. Consonants are, generally speaking, only the beginning or end of vowels; i. e. the mouth must in some way be opened to produce a vowel sound, and closed to conclude the vowel sounds; and this mode of opening or closing gives rise to that which we call a consonant. The circumstance that consonants cannot be pronounced without the aid of vowels, shows, that the strict division into vowels and consonants is one which nature has not made. Mr. Arnott says (p. 488 of the American ed.): "To explain the second class of the modifications of sound, called *consonants*, we remark, that while any continued or vowel sound is passing through the mouth, if it be interrupted, whether by a complete closure of the mouth, or only by an approximation of parts, the effect on the ear of a listener is so exceedingly different, according to the situation in the mouth where the interruption occurs, and to the manner in which it occurs, that many most distinct modifications thence arise. Thus any continued sound, as *a*, if arrested by a closure of the mouth at the external confine or lips, is heard to terminate with the modification expressed by the letter *p*; that is, the syllable *ap* has been pronounced: but if, under similar circumstances, the closure be made at the back of the mouth, by the tongue rising against the palate, we hear the modification expressed by the letter *k*, and the syllable *ak* has been pronounced: and if the closure be made in the middle of the mouth, by the tip of the tongue rising against the roof, the sound expressed by *t* is produced, and the syllable *at* is heard: and so of others. It is to be remarked, also, that the ear is equally sensible of the peculiarities, whether the closure precedes the continued sound or follows it; that is to say, whether the syllables pronounced are *ap*, *at*, *ak*, or *pa*, *ta*, *ka*. The modifications of which we are now speaking appear, then, not to be really sounds, but only manners of beginning and ending sounds; and it is because they can thus be perceived only in connexion with vocal sounds, that they are called *consonants*."—We refer the reader to Mr. Arnott's work, for further remarks on the pronunciation of the various vowels and consonants, and add here only his table of articulations, in which, if we consider the perpendicular line on the left as the opening of the mouth, and the line on the right as the back part of the mouth, the four divisions indicate the places where the letters are pronounced.—See the articles on the letters and on writing.

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* See Magendie's *Report on Doctor Bennati's* (physician to the Italian opera in Paris) *Memoir on the Diseases of the Uvula*, read March 7, 1831, in the French academy.

Labial.	*Palatal.*	*Guttural.*		
P	T	K		*Mute.*
B	D L	G		*Semi-mute.*
M	N	ng	on	*Semi-vowel or nasal.*
F	th S sh	ch	H	*Aspirate.*
V	th Z J	gh		*Vocal aspirate.*
pr	R	ghr		*Vibratory.*

The effect of the sexual functions on the voice is well known; but the mode in which this effect takes place is not explained. This influence is observable even in birds, which delight us with their amorous melodies at the season of pairing; in woman, whose voice acquires its metallic tone and its fulness at the age of puberty; and particularly in man, who does not possess, till that period, the "voices" peculiar to him, the bass or tenor, and in whom the change of voice, as every one knows, is prevented by previous emasculation. But also many other causes, affecting especially the nervous system, produce considerable changes in the voice, which afford important symptoms in diseases. Thus it may be wanting altogether in a diseased state (this is called *aphonia*), or it may be changed morbidly (*paraphonia*, *cacophonia*). In the latter case, it is either too strong or too weak, too deep (*vox clangosa*, if it is at the same time too strong, and *raucitas gravis*, if it is at the same time too weak), or too high (*oxyphonia*, which again is divided into *vox cucuriens* or *rudens*, which is at the same time too strong, and *raucitas acuta*, at the same time too weak). Most of these affections appear as symptoms, but are seldom considered as a primary disease. They often enable the physician to draw conclusions respecting the true character of the disease. The entire loss of voice originates from cramp, weakness or paralysis. If it is caused by paralysis, it is almost always a fatal symptom. If it is connected with an excitable constitution, it indicates violent congestions and approaching apoplexy; occurring after delivery, it indicates convulsions; in the croup, suffocation and mortification. An unnaturally strong voice is very common in madness. The *vox clangosa*, sounding as if the person was speaking in an empty pot, is, in dangerous diseases, a very serious symptom. The hoarseness, in which the voice is too deep, indicates great danger in bilious fever, scarlatina, consumption, and dropsy of the chest. It is not a symptom of disease when caused merely by the arrival of the age of puberty, by catarrh, or by dust which has been inspired. The *vox cucuriens*, *seu rudens*, *seu pipiens* (sounding similar to the crowing of a cock, or the braying of an ass) is pathognomic in the hooping cough and croup, and is also sometimes found in dropsy in the head and small-pox, and is a bad symptom. The *raucitas acuta* originates partly from the same causes as the *raucitas gravis*. With hysterical persons it indicates an approaching fit.

Voice, in music. A good musical voice depends chiefly upon the soundness and power of the organs of utterance and of hearing, and the necessary musical disposition, and is distinguished by clearness of intonation, ease, strength, duration, equality, harmoniousness and fulness of the sounds; whilst natural defects or diseases in those organs (for instance, narrowness of the chest, weak lungs) give rise to imperfections in the voice. As weakness of lungs necessarily affects the voice, so frequent singing developes and strengthens the lungs, which are strong enough to support it; and instruction in singing is, therefore, in a medical respect, of great importance. The rarity of consumption in most parts of Germany, compared to other countries, is ascribed by some, in a great measure, to the general instruction and frequent practice in singing. Practice in singing for several generations must undoubtedly have a decided influence in giving strength to the lungs, which may also be much promoted by gymnastic exercises that expand the chest. A fine voice requires a long, regular and strong breath. Some faults in singing, however, originate from a bad use of a good voice; as the singing through the nose, teeth, &c. A voice which has by nature the requisite properties, acquires compass and strength, correctness and pliability, by exercise. Thorough methodical practice in singing should not, in most cases, be begun before the ninth or tenth year, though the ear ought to be early exercised. The variety of voices is as great as that of individuals. In respect to depth and height, there are four principal classes of voices: discant, alto, tenor and bass. Discant, or soprano, moreover, is distinguished from lower, or mezzo soprano, tenor from counter tenor, and between tenor and bass comes the proper baritono. A good bass voice generally extends from F or G, below G gamut, to C or D, above the bass-clef note; the baritono from about G gamut to F, above the bass-clef note; the tenor from C, above G gamut, to G, the treble-clef note, or A above it; the counter-tenor from E or F, above G gamut, to B or C, above the treble-clef note; the mezzo soprano from A or B, above the bass-clef note, to E or F, above the treble-clef note; and the soprano from C, above the bass-clef note, to A, B or C, in alt, and something higher. Female voices are, by nature, treble and alto; those of boys, even if they have the compass of high treble, are usually alto. When the boy arrives at the age of puberty, the alto changes into tenor or bass.—*Voice* is also the name given to a part assigned to a human voice or an instrument in a composition.

Voigtland (in law Latin, *Terra Advocatorum*); in a wider sense, all that part of Germany which formerly belonged to the imperial bailiffs (in German, *Voigte*, Latin, *advocati*), the ancestors of the present princes and counts of Reuss. It comprised the Saxon circle of Voigtland, the bailiwic of Weida and Ziegenrück, in the grand duchy of Saxe-Weimar, the territories of the princes and counts of Reuss, the district of Hof, now included in the Bavarian circle of the Upper Maine, and the Saxe-Altenburg bailiwic of Ronneburg. From the eleventh century there were imperial officers, in the above described region, who bore the name of bailiffs (*advocati*, *voigte*) of the holy Roman empire, and who managed the affairs of the emperor. In a narrower sense, the term is applied particularly to a circle of Saxony, consisting of a part of the former Voigtland. It has 102,891 inhabitants on 680 square miles, and is also called the circle of Neustadt. The chief town is Plauen. It contains some mountainous and woody districts, and in some parts is well adapted for pasturage and tillage. The most remarkable peculiarity is the pearl-fishery in the river Elster (see *Pearl*), which is sometimes very productive, and has yielded some pearls of much beauty.

Voiture, Vincent, a celebrated French wit, was born at Amiens, in 1598. His agreeable manners and conversation introduced him to good company; and he was a visitor at the Hôtel de Rambouillet, and was also well received at court, and by Gaston, duke of Orleans, who made him his master of the ceremonies. In 1634, he was admitted into the French academy, and was subsequently sent on a mission to Spain, where he composed some verses in such pure and natural Spanish, that every body ascribed them to Lope de Vega. He also visited Rome and England, and died in 1648. Voiture was one of the first persons in France distinguished by the title of *bel esprit*. He wrote verses in French, Spanish and Italian. The former are occasionally easy and sprightly, but have much strained wit and affected sentiment. His letters place him high in the class of epistolary writers, though they often degenerate into affectation, insipid pleasantries, and far-fetched allusions.

Volatile Oils. (See *Essential Oils*.)

Volatility, in chemistry; the quality of a substance, to evaporate in a certain degree of heat: it is the opposite to fixidity. It is very probable, that all substances are capable of being volatilized, and that we should be able to dissolve every one of them by fire, but for the want of a sufficient degree of heat.

Volcanoes. The volcano and the earthquake might, perhaps, with no impropriety, have been treated of together, since both are undoubtedly effects of the same subterranean process; but we have preferred to devote to each a separate article, as the phenomena on the earth's surface, to which they give rise, are considerably different. The present article will, however, embrace several particulars relating to earthquakes, which were omitted in the article under that title, on account of their close connexion with the subject of volcanoes. There are certain regions to which volcanic eruptions, and the movements of great earthquakes, are confined: over the whole of vast tracts active volcanic vents are distributed at intervals, and most commonly arranged in a linear direction. Throughout the intermediate spaces there is abundant evidence that the subterranean fire is continually at work; for the ground is convulsed, from time to time, by earthquakes: gaseous vapors, especially carbonic acid gas, are disengaged plentifully from the soil; springs often issue at a very high temperature, and their waters are very commonly impregnated with the same mineral matters which are discharged by volcanoes during eruptions. Of these great regions, that of the Andes is one of the best defined. Commencing southward, at least in Chile, at the forty-sixth degree of south latitude, it proceeds northward to the twenty-seventh degree, forming an uninterrupted line of volcanoes. The Chilean volcanoes rise up through granitic mountains. Villarica, one of the principal, continues burning without intermission, and is so high, that it may be distinguished at the distance of 150 miles. A year never passes in this province without some slight shocks of earthquakes; and about once in a century, or oftener, tremendous convulsions occur, by which the land has been shaken from one extremity to the other, and continuous tracts, together with the bed of the Pacific, have been raised permanently from one to twenty feet above their former level.

Hot springs are numerous in this district, and mineral waters of various kinds. Pursuing our course northward, we find in Peru only one active volcano as yet known; but the province is so subject to earthquakes, that scarcely a week passes without a shock; and many of these have been so violent as to create great changes of the surface. Farther north, we find, in the middle of Quito, where the Andes attain their greatest elevation, Tunguragua, Cotopaxi, Antisana and Pichincha, the three former of which not unfrequently emit flames. From the first of these, a deluge of mud descended in 1797, and filled valleys, 1000 feet wide, to the depth of 600 feet, forming barriers, whereby rivers were dammed up, and lakes occasioned. Earthquakes have, in the same province, caused great revolutions in the physical features of the surface. There are three volcanoes farther north, in the province of Pasto, and three others in that of Popayan. In the provinces of Guatimala and Nicaragua, which lie between the isthmus of Panama and Mexico, there are no less than twenty-one active volcanoes. This great volcanic chain, after having pursued its course for several thousand miles from south to north, turns off in a side direction in Mexico, and is prolonged in a great plateau, between the eighteenth and twenty-second degrees of north latitude. The plateau in question owes its present form to the circumstance of an ancient system of valleys, in a chain of primary mountains, having been filled up, to the depth of many thousand feet, with various volcanic products. Five active volcanoes traverse Mexico from west to east; viz. Tuxtla, Orizaba, Popocatepetl, Jorullo and Colima. Jorullo, which is in the centre of the great plateau, is no less than forty leagues from the ocean, which shows that the proximity of the sea is not a necessary condition, although certainly a very general characteristic, of the position of active volcanoes. The extraordinary eruption of this mountain in 1759 will be described in the sequel. To the north of Mexico there are three, or, according to some, five volcanoes, in the peninsula of California. In the year 1812, violent earthquakes convulsed the valley of the Mississippi at New Madrid, for the space of three hundred miles in length. As this happened exactly at the same time as the great earthquake of Caraccas, it is probable that these two points are parts of one continuous volcanic region; for the whole circumference of the intervening Caribbean sea must be considered as a theatre of earthquakes and volcanoes. On the north lies the island of Jamaica, which, with a tract of the contiguous sea, has often experienced tremendous shocks; and these are frequent along a line extending from Jamaica to St. Domingo and Porto Rico. On the south of the same basin, the shores and mountains of Colombia are perpetually convulsed. On the west is the volcanic chain of Guatimala and Mexico, and on the east, the West Indian isles, where, in St. Vincent's and Guadaloupe, are active vents. Thus it will be seen that volcanoes and earthquakes occur, uninterruptedly, from Chile to the north of Mexico; and it seems probable, that they will hereafter be found to extend, at least, from cape Horn to California. In regard to the eastern limits of the region, they lie deep beneath the waves of the Pacific, and must therefore continue unknown to us. On the west, they do not appear, except where they include the West Indian islands, to be prolonged to a great distance; for there seem to be no indications of volcanic disturbances in Guiana, Brazil and Buenos Ayres. On an equal, if not a still grander scale, is another continuous line of volcanic action, which commences on the north, with the Aleutian isles in Russian America, and extends first in an easterly direction for nearly two hundred miles, and southward, without interruption, throughout a space of between sixty and seventy degrees of latitude, to the Moluccas, and then branches off in different directions both towards the east and north-west. The northern extremity of this volcanic region is the peninsula of Alaska, in about the fifty-fifth degree of latitude. Thence the line is continued, through the Aleutian or Fox islands, to Kamtschatka, in the southern extremity of which there are seven active volcanoes, which, in some eruptions, have scattered ashes to immense distances. The Kurile chain of isles constitutes the prolongation of the range in a southern direction; the line is then continued to the south-west in the great island of Jesso, where there are active vents. Between the Japanese and Philippine islands, the communication is preserved by several small insular vents. The line is then prolonged through Sanguir, and the north-eastern extremity of Celebes, to the Moluccas. Here a great transverse line may be said to run from east to west. On the west, it passes through the whole of Java, where there are thirty-eight large volcanic mountains. In the volcanoes of Sumatra, the same linear arrangement is preserved. In another direction, the volcanic range is prolonged through Borneo, Celebes, Banda, New Guinea; and farther eastward in New Britain, New Ireland, and various parts of the Polynesian archipelago. The Pacific ocean, indeed, seems, in equatorial latitudes, to be one vast theatre of igneous action; and its innumerable archipelagoes, such as the New Hebrides, Friendly islands, and Georgian islands, are all composed either of coralline limestones or volcanic rocks, with active vents here and there interspersed. In the old world, the volcanic region extends from east to west for the distance of about 1000 miles, from the Caspian sea to the Azores, including within its limits the greater part of the Mediterranean and its most prominent peninsulas. From south to north, it reaches from about the thirty-fifth to the forty-fifth degree of latitude. Its northern boundaries are Caucasus, the Black sea, the mountains of Thrace, Transylvania and Hungary,—the Austrian, Tyrolian and Swiss Alps,—the Cevennes and Pyrenees, with the mountains which branch off from the Pyrenees westward, to the north side of the Tagus. Its western limits are the ocean; but it is impossible to determine how far it may be prolonged in that direction; neither can we assign with precision its extreme eastern limit, since the country beyond the Caspian and sea of Aral is scarcely known. The southern boundaries of the region include the most northern parts of Africa, and part of the desert of Arabia. We may trace, through the whole of the area comprehended within these extensive limits, numerous points of volcanic eruptions, hot springs, gaseous emanations, and other signs of igneous agency; while few tracts of any extent have been entirely exempt from earthquakes throughout the last 3000 years. Besides the continuous spaces of subterranean disturbance, of which the outline has been given above, there are other disconnected volcanic groups, of which the geographical extent is, as yet, imperfectly known. Among these may be mentioned Iceland, which belongs, perhaps, to the same region as the volcano in Jan Mayen's island. With these, also, part of the nearest coast of Greenland, which is sometimes shaken by earthquakes, may be connected. The island of Bourbon belongs to another theatre of volcanic action, of which Madagascar probably forms a part, if the alleged existence of burning volcanoes in that island shall be substantiated. Respecting the volcanic system of Southern Europe, it may be observed, that there is a central tract, where the greatest earthquakes prevail, in which rocks are shattered and cities laid in ruins. On each side of this line of greatest commotion, there are parallel bands of country where the shocks are less violent. At a still greater distance, as in Northern Italy, there are spaces where the shocks are much rarer and more feeble. Beyond these limits, again, all countries are liable to slight tremors at distant intervals of time, when some great crisis of subterranean movement agitates an adjoining volcanic region; but these may be considered as mere vibrations, propagated mechanically through the external crust of the globe, as sounds travel almost to indefinite distances through the air. Shocks of this kind have been felt in England, Scotland, Northern France and Germany, particularly during the Lisbon earthquake.

We shall now give some account of a few of the principal volcanic vents, dispersed through the great regions before described, and consider the composition and arrangement of their lavas and ejected matter. From the first colonization of Southern Italy by the Greeks, Vesuvius afforded no other indication of its volcanic character than such as the naturalist might infer from the analogy of its structure to other volcanoes. These were recognised by Strabo. The ancient cone was of a very regular form, terminating, not, as at present, in two peaks, but with a flattish summit, where the remains of an ancient crater, nearly filled up, had left a slight depression, covered in its interior by wild vines, and with a sterile plain at the bottom. On the exterior, the sides of the mountains were covered with fertile fields, richly cultivated, and at its base were the populous cities of Herculaneum and Pompeii. But the scene of repose was at length doomed to cease, and the volcanic fire was recalled to the main channel, which, at some former, unknown period, had given passage to repeated streams of melted lava, sand and scoriæ. The first symptom of the revival of the energies of this volcano was the occurrence of an earthquake, A. D. 63, which did considerable injury to the cities in its vicinity. From that time to the year 79, slight shocks were frequent; and in the month of August of that year, they became more numerous and violent, till they ended at length in an eruption. The elder Pliny, who commanded the Roman fleet, was then stationed at Misenum; and, in his anxiety to obtain a near view of the phenomena, he lost his life, being suffocated with sulphureous vapors. His nephew, the younger Pliny, remained at Misenum, and has given us, in his Letters, a lively description of the awful scene. A dense column of vapor was first seen rising vertically from Vesuvius, and then spreading itself out laterally, so that its upper portion resembled the head, and its lower, the trunk of the pine, which characterizes the Italian landscape. This black cloud was pierced, occasionally, by flashes of fire as vivid as lightning, succeeded by darkness more profound than night. Ashes fell even upon the ships at Misenum, and caused a shoal in one part of the sea. The ground rocked, and the sea receded from the shores, so that many marine animals were seen on the dry sand. The appearances above described agree perfectly with those witnessed in more recent eruptions, especially those of Monte Nuovo, in 1538, and of Vesuvius, in 1822. In all times and countries, indeed, there is a striking uniformity in the volcanic phenomena; but it is most singular that Pliny, although giving a circumstantial detail of so many physical facts, and enlarging upon the manner of his uncle's death, and the ashes which fell when he was at Stabiæ, makes no allusion whatever to the sudden overwhelming of two large and populous cities, Herculaneum and Pompeii. (q. v.) Tacitus, the friend and contemporary of Pliny, when adverting, in general terms, to the convulsion, says merely, that "cities were swallowed up or buried" (*haustæ aut obrutæ urbes.* Hist. lib. i.). It does not appear that, in the year 79, any lava flowed from Vesuvius: the ejected substances appear to have consisted entirely of sand and fragments of older lava. In 1036, the first eruption of flowing lava occurred. A second happened in 1049, and a third in 1138; after which a great pause ensued of 168 years. During part of 1301, earthquakes had succeeded one another with fearful rapidity; and they terminated at last with the discharge of a lava stream from a point named the Campo del Arso, not far from the town of Ischia. This lava ran quite down to the sea—a distance of about two miles. Its surface is of a reddish-black color; and it is almost as sterile, after a period of five centuries, as if it had cooled down yesterday. The next eruption occurred in 1306; between which era and 1631, there was only one other (in 1500), and that a slight one. During this interval, a memorable event occurred in the Phlegræan fields—the sudden formation of a new mountain in 1538. Frequent earthquakes for two years preceding disturbed the neighborhood of Pozzuoli; but it was not until the twenty-seventh and twenty-eighth of September, 1538, that they became alarming, when not less than twenty shocks were experienced in twenty-four hours. At length, on the night of the twenty-ninth, two hours after sunset, a gulf opened between the little town of Tripergola, which once existed on the site of the Monte Nuovo, and the baths in its suburbs, which were much frequented. A large fissure approached the town with a tremendous noise, and began to discharge pumice-stones, blocks of unmelted lava, and ashes mixed with water, and, occasionally, flames. The ashes fell in immense quantities, even at Naples. The sea retired suddenly for two hundred yards, and a portion of its bed was left dry; and the whole coast from Monte Nuevo to beyond Pozzuoli was upraised to the height of many feet above the bed of the Mediterranean, and has ever since remained permanently elevated. On the third of October, the eruption ceased, so that the hill Monte Nuovo, which is 440 feet above the level of the bay, and a mile and a half in circumference at its base, and which was chiefly thrown up in a day and a night, was accessible. The depth of its crater is 421 feet from the summit of the hill, so that its bottom is only nineteen feet above the level of the sea. For nearly a century after the birth of Monte Nuovo, Vesuvius still continued in a state of tranquillity. Bracini, who visited Vesuvius not long before the eruption of 1631, gives the following description of its interior. The crater was five miles in circumference, and about one thousand paces deep. Its sides were covered with brush wood, and at the bottom there was a plain on which cattle grazed. In the woody parts, wild boars frequently harbored. But at length these forests and grassy plains were suddenly consumed—blown into the air, and their ashes scattered to the winds. In December, 1631, seven streams of lava poured at once from the crater, and overflowed several villages on the sides and at the foot of the mountain. Great floods of mud were as destructive as the lava itself; for such (as often happens during these catastrophes) was the violence of the rains produced by the evolution of aqueous vapor, that torrents of water descended the cone, and, becoming charged with impalpable volcanic dust, rolled along loose ashes, acquiring such consistency as to deserve the appellation of aqueous lava. A brief period of repose ensued, which lasted only until the year 1666, from which time to the present, there has been a constant series of eruptions, with rarely an interval of rest exceeding ten years. The modern lavas of Vesuvius are characterized by a large proportion of augite. When they are composed of this mineral and feldspar, they differ in composition but slightly from many of the trap-rocks. (See *Trap*.) They are often porphyritic, containing disseminated crystals of augite, leucite, or some other mineral, imbedded in a more earthy base. These porphyritic lavas are often extremely compact. In the lava currents of central France (those of Viverais), the uppermost portion, often forty feet or more in thickness, is an amorphous mass passing downwards into lava, irregularly prismatic; and under this there is a foundation of regular and vertical columns, in that part of the current which must have cooled most slowly. A great variety of minerals are found in the lavas of Vesuvius and Somma. Augite, leucite, feldspar, mica, olivine, specular iron, idocrase, garnet and sulphur are most abundant. It is an extraordinary fact, that, in an area of three square miles round Vesuvius, a greater number of mineral species have been found than in any spot, of the same dimensions, on the surface of the globe. Many of these are peculiar to this locality. A small part of the ejected matter, however, remains so near to the volcanic orifice. A large portion of sand and scoriæ is borne by the winds and scattered over the surrounding plains, or falls into the sea; and much more is swept down by torrents into the deep during the intervals, often protracted for many centuries, between eruptions. These horizontal deposits of tufaceous matter become intermixed with sediment of other kinds, and with shells and corals, and, when afterwards raised, form rocks of a mixed character, such as tufas, peperinos and volcanic conglomerates. Besides the ejections which fall on the cone, and that much greater mass which finds its way gradually to the neighboring sea, there is a third portion, often of no inconsiderable thickness, composed of alluvions, spread over the valleys and plains, at small distances from the volcano. Immense volumes of aqueous vapor are evolved from a crater during eruptions, and often for a long time subsequently to the discharge of scoriæ and lava. These vapors are condensed in the cold atmosphere surrounding the high volcanic peak; and heavy rains are caused sometimes even in countries where, under other circumstances, such a phenomenon is entirely unknown. The floods thus occasioned sweep along impalpable dust and light scoriæ, till a current of mud is produced, which is often more dreaded than an igneous stream, from the greater velocity with which it moves. After Vesuvius, the most authentic records relate to Ætna, which rises, near the sea, in solitary grandeur, to the height of nearly 15,000 feet, the mass consisting chiefly of volcanic matter ejected above the surface of the water. The base of the cone is eighty-seven miles. Ætna appears to have been in activity from the earliest times of tradition. Thucydides informs us that between the colonization of Sicily by the Greeks and the commencement of the Peloponnesian war (B. C. 431), three eruptions had occurred. A great eruption occurred in the year 1669. The lava, after having overflowed fourteen towns and villages, some having a population of between 3000 and 4000 inhabitants, arrived, at length, at the walls of Catania. These had been purposely raised to protect the city; but the burning flood accumulated till it rose to the top of the rampart, which was sixty feet in height, and then fell in a fiery cascade, and overwhelmed part of the city. The wall, however, was not thrown down, but was discovered long afterwards by excavations made in the rock by the prince of Biscari; so that the traveller may now see the solid lava curling over the top of the rampart, as if still in the very act of falling. This great current had performed a course of fifteen miles, before it entered the sea, where it was still 600 yards broad and 40 feet deep. A gentleman of Catania, named Pappalardo, desiring to secure the city from the approach of the threatening torrent, went out with a party of fifty men, whom he had dressed in skins to protect them from the heat, and armed with iron crows and hooks. They broke open one of the solid walls which flanked the current near Belpasso, and immediately forth issued a rivulet of melted matter, which took the direction of Paternò; but the inhabitants of that town, being alarmed for their safety, took up arms, and put a stop to further operations. In 1811, the great crater testified, by its violent detonations, that the lava had ascended to near the summit of the mountain, by its central duct. A violent shock was then felt, and a stream broke out from the side of the cone, at no great distance from its apex. Shortly after, other streams, to the number of six, broke out in succession, still lower down the mountain, but all in the same straight line. In 1819, three large mouths opened very near those which were formed in the eruptions of 1811, from which flames, red-hot cinders and sand were thrown up, with loud explosions. A few minutes afterwards, another mouth opened below, from which flames and smoke issued; and finally, a fifth, lower still, whence a torrent of lava flowed, which spread itself, with great velocity, over the valley Del Bove. This stream flowed two miles in the first twenty-four hours, and nearly as far in the succeeding day and night. As the last example of modern volcanic eruptions, we shall mention that of Jorullo, in Mexico, in 1759. The plain, which was the site of the eruption, is thirty-six leagues from the sea, and, at the time of the eruption, was occupied by fertile fields of sugar-cane and indigo. In the month of June, hollow sounds, of an alarming nature, were heard, and earthquakes succeeded each other for two months, until, in September, flames issued from the ground, and fragments of burning rocks were thrown to prodigious heights. Six volcanic cones, composed of scoriæ and fragmentary lava were formed on the line of a chasm which ran in the direction from north-north-east to south-south-west. The least of these cones was 300 feet in height; and Jorullo, the central one, was elevated 1600 feet above the level of the sea. A subsequent eruption of Jorullo happened in 1819, accompanied by an earthquake. The city of Guanaxuato, distant about 140 miles from Jorullo, was covered with ashes, to the depth of six inches, from this eruption. During the last century, about fifty eruptions are recorded of the five European volcanoes, Vesuvius, Ætna, Volcano, Santorin and Iceland; but many beneath the sea, in the Grecian Archipelago, and near Iceland, may, doubtless, have passed unnoticed. If some of them produced no lava, others, on the contrary, like that of Skoptar Jokul, in 1783, poured out melted matter for five or six years consecutively. Now, if we consider the active volcanoes of Europe to constitute about a fortieth part of those already known on the globe, and calculate that, one with another, they are about equal in activity to the burning mountains in other districts, we may then compute that there happen on the earth about 2000 eruptions in the course of a century, or about twenty every year, or one in eighteen days. However inconsiderable, therefore, may be the superficial rocks, which the operations of fire produce on the surface, we must suppose the subterranean changes now constantly in progress to be on the grandest scale. The loftiest volcanic cones must be insignificant when contrasted with the products of fire in the nether regions. One of the earliest hypotheses to account for volcanic eruptions is that which attributes them to the eructations of a perpetual central fire, to which, however, the nature of the lava, the method of its projection, and, above all, the known laws of the communication of heat, are insurmountably opposed. The sudden evolution of steam has also frequently been resorted to. They have also been referred to the ignition of beds of coal; and Werner supposed that the fire thus produced fused the circumjacent rocks, and formed lava. Others have called sulphur, pyrites, petroleum and bitumen to their aid, but have sought in vain for the necessary supply of oxygen, without which these combustibles could not perform their required part; and, indeed, if we grant an unlimited supply of that element, the projectile force—the vapor—still remains to be accounted for. Others have imagined a great depôt of electric matter, pent up in certain submarine and subterranean caverns, and occasionally sallying forth to fuse and blow up the surrounding materials. The most plausible theory of volcanoes is that suggested by sir H. Davy, soon after he had discovered the nature of the earthy and alkaline bodies. Indeed, it enables us, in most cases, upon just principles of sound analogy, to explain their origin; for lava consists of earthy and alkaline bodies, ejected in intense ignition; and it is associated with vapor, with explosions of hydrogen gas, with the production of nitrogen; and, in short, there is every concomitant circumstance to lead to the conclusion, that there exist, in the bowels of the earth, masses of those highly inflammable metallic bodies, constituting the bases of the earths and alkalies; and these and water are essential requisites for the production of the phenomena that precede, accompany and follow the eruption of volcanoes: they may be referred to, as accounting for the earthquakes, the explosions and the gaseous products; and they are the only agents, with which we are acquainted, capable of fulfilling all the requisites. How or where these bodies exist, at what depths, in what quantity, and how accessible to water, are questions that we cannot solve; but it is a curious fact, that water is always found connected with volcanoes. Vesuvius, Ætna and Hecla are upon the verge of the sea; and in the vicinity of the burning mountains of the Cordilleras there are lakes; and it has been observed, that springs and lakes suddenly dry up previous to the active eruption of a volcano.

Volga. (See *Wolga*.)

Volhynia; a government of the Russian empire, between the governments of Grodno and Podolia; square miles, 29,300; population, about 1,500,000. While Poland was independent, Volhynia formed a province of that kingdom, which bordered with the Ukraine on the south-east. The soil is fertile, producing wheat and rye, and its pasture lands are extensive; but a great part of the surface is forest. From its frontier situation, it has often been exposed to the evils of invasion. Since 1793, it has been in the possession of Russia. Volhynia was in insurrection in 1831, but shared the fate of Poland, when that unfortunate country was again trampled under foot by the victorious barbarians. (See *Poland*, and *Russia*.)

Volition. (See *Will*.)

Volney, Constantine Francis Chassebœuf, count de, peer of France, a celebrated French writer, was born at Craon, in Brittany, in 1755. Inspired, at an early age, with a desire to visit foreign countries in search of knowledge, he no sooner became master of a small patrimonial estate, than he converted it into money, and embarked for the Levant, travelled through several parts of Egypt and Syria, and, after a residence for some time in a Maronite convent on mount Libanus, for the purpose of studying the Oriental languages, returned to France, whence he had been absent more than two years. The fruits of his inquiries appeared in his *Voyage en Syrie et en Egypte* (2 vols., 8vo.), which was translated into English, Dutch and German. This work procured him much reputation; and, taking up his residence at Auteuil, near Paris, he became intimately connected with some of the most eminent among his literary contemporaries. On the convocation of the states-general, in 1789, Volney was elected a deputy from the *tiers etat* of Anjou, when he embraced the cause of liberty, and frequently appeared with advantage as a public speaker. In 1791, he published his deistical work, entitled *Les Ruines, ou Méditations sur les Révolutions des Empires*. After the conclusion of the sessions of the national assembly, he accompanied M. Pozzo di Borgo to Corsica, where he had projected some agricultural improvements. He made attempts to establish in that island the cultivation of the sugar-cane, indigo, and other tropical plants; but he was unsuccessful. Returning to Paris, he suffered persecution under the reign of terror; and, after ten months' imprisonment, the fall of Robespierre restored him to liberty. In November, 1794, he was appointed professor of history at the normal school; and the course of lectures on the philosophy of history which he delivered, and which was published and translated into English, added considerably to his reputation. In 1795, he made a voyage to the U. States of America; and he would probably have settled in America, had not the prospect of a war with France induced him to return home in the spring of 1798. After the revolution which elevated Bonaparte to the consulship, he was nominated a senator; and it is said the office of second consul was designed for him, but his political opinions prevented the appointment from taking place. In the senate, he coöperated with Lanjuinais, Cabanis, Destutt de Tracy, Collaud, Garat, and others, whose influence was constantly exerted in the cause of freedom. After the restoration, Volney, by a decree of the fourth of June, 1814, was designated a member of the chamber of peers, where he remained faithful to his principles, always appearing among the ardent defenders of the rights of the nation. His death took place at Paris, in 1820. Besides the works already mentioned, he published *Simplification des Langues Orientales, ou Méthode nouvelle et facile d'apprendre les Langues Arabe, Persane et Turque, avec les Caractères Européens* (1795, 8vo.); *Tableau du Climat et du Sol des États Unis d'Amérique* (1803, 2 vols., 8vo.), with a Vocabulary of the Language of the Miamis; *Chronologie d'Herodote conformé à son Texte* (1808, 2 vols., 8vo.); *Recherches nouvelles sur l'Histoire Ancienne* (1814—1815, 3 vols., 8vo.). His *Œuvres complètes*, with his Life, appeared at Paris, in 1821, in 8 vols.

Volpato, Giovanni, an engraver, born at Bassano, in 1733, spent his early years in executing drawings for embroidery. Having acquired the use of the burin, without any instruction, he afterwards went to Venice, where he executed engravings, in connexion with Bartolozzi, for Wagner, a picture dealer, and finally left Venice for Rome. Here a society of amateurs, at the head of whom was Ercole Bonajuti, had been formed for the purpose of procuring engravings of Raphael's works in the Vatican. The drawings of the Spanish painter La Veja, in eighty sheets, which had been prepared by a labor of three years for cardinal Silvio Valenti, and which had been bequeathed by the cardinal Luigi Valenti to the Vatican library, were made the basis of this work. Volpato was employed in its execution, and soon became distinguished among the artists connected with him. The six sheets executed by him are of the highest merit. They reproduce, as far as is possible in a small space, the impression of the original, and prove how fully the artist appreciated the pictorial merits of those great paintings, by his masterly distribution of light and shade. The most skilful union of the burin with the dry-point could alone have enabled him to accomplish this difficult task in a work of such extent. The publication of Raphael's *loggie* and *arabesques* placed Volpato at the head of a school of design, and gave him the honor of having rendered the productions of that great master more generally known, and of having awakened a purer taste among engravers. Accuracy of execution, and attention to the pictorial effect, so far as it depends not upon coloring, but upon light and shade, are the distinguishing merits of his school, from which proceeded Raphael Morghen (q. v.), at first the pupil, afterwards the friend, and finally the son-in-law of Volpato. Gavin Hamilton, the companion of his Socratic suppers, at which Canova also used to be present, was not without influence upon the taste of the artist. Volpato died in 1803, and Canova honored the memory of his friend and benefactor by a relief, which is placed in the hall of the church of the Apostles in Rome.

Volsci; an Ausonian tribe, which resided, before the foundation of Rome, in the ancient Latium (now *Campagna di Roma*). They had a republican government. Livy calls them the eternal enemies of Rome. Their principal city was Antium, the ruins of which are to be seen in the neighborhood of cape Angio. Corioli, from which Coriolanus derived his surname, was another city of theirs. After having several times endangered the Roman state, they were conquered, and disappeared from history, like the other tribes of Latium.

Volta, Alessandro, descended from a respectable family of Como, was born in that place, in 1745, and died there in 1827. While pursuing his studies at Como, he displayed not less inclination for the poetic art than for the severe sciences, and composed a fine Latin poem upon physics. But he soon after devoted himself entirely to physical inquiries, and laid the foundation of his fame in two treatises, published in 1769 and 1771, in which he gave a description of a new electrical machine. In 1774, Volta became rector of the gymnasium in Como, and professor of physics, and, in 1779, was transferred to Pavia. Here he occupied himself entirely with electrical researches. He had previously (1777) invented the electrophorus, and his invention of the electroscope was also an important improvement. (See *Electricity*.) His observations upon the bubbles which arise from stagnant water, led him also to some valuable discoveries in regard to gases. The electrical pistol, the eudiometer, the lamp with inflammable air, the electrical condenser, and other inventions, are among his claims to renown. He next turned his attention to some of the atmospherical phenomena, as the nature of hail, &c., and subsequently increased his reputation by the discovery of the Voltaic pile (see *Galvanism*), and, in 1782, made a tour through France, Germany, England and Holland, on which occasion he was treated with great respect by Haller, Joseph II and Voltaire. On his return to Italy, he introduced the cultivation of the potato into Lombardy. In 1794, he received the Copleian medal from the royal society of London, on account of his paper upon the condenser; and, in 1801, his electric apparatus attracted so much notice in France that the first consul made him a present of 6000 francs. He was subsequently deputy from the university of Pavia to the consulta held at Lyons, and Napoleon conferred upon him the cross of the legion of honor, and the order of the iron crown. In 1815, the emperor Francis appointed him director of the philosophical faculty in the university of Pavia. As a man, Volta was simple, modest and religious, a good father and citizen. Antinori edited a collection of his works (*Opere di Volta*, Florence, 1816, 5 vols.), and professor Zuccala published a eulogy upon him (*Elogio di Volta*) in 1827.

Voltaic Pile. (See *Galvanism.*)

Voltaire, Francis Marie Arouet de. If any man ever showed the natural sovereignty of the intellect, and its superiority to all earthly splendor, it was this distinguished man, who, in a nation, and at a time, when the learned and scientific were considered in the light of upper domestics of the great, undertook to secure for them an independent station. His influence was felt throughout Europe; and never did a man, by the force of his writings, obtain such power over his nation. Voltaire was born at Chatenay, near Paris, Feb. 20, 1694. His father, Francis Arouet, notary of the Châtelet, and finally treasurer of the chamber of accounts, possessed considerable property, so that he was enabled to give his son an excellent education. Voltaire received his first instruction in the Jesuits' college of Louis XIV., under Porée and Le Jay. Here he displayed talents which warranted the highest expectations. In his third year he was able to repeat the fables of La Fontaine, and, somewhat later, recited, from memory, a poem of Rousseau (*La Moïsade*), before the celebrated Ninon de l'Enclos, who was so much pleased with the talent of the boy, that she left him a legacy of 2000 livres to purchase a library. According to the custom of the time, he was obliged to leave the family name to the eldest son, and therefore assumed that name which has since become so famous. His father wished to see him a lawyer and advocate; but his love of literature and general study did not allow him long to devote himself to the law. He wrote poetry continually, and cultivated his talents in the company of men of much accomplishment and wit, but of little principle; such as Chaulieu, the marquis de la Fare, marshal Villars, the grand prior of Vendome, the prince of Conti, and others. Here he caught the tone of polished society which distinguishes his writings, and which greatly contributed to his influence. His father was displeased with his mode of life, and entreated the marquis of Chateauneuf, French minister to Holland, to take the young Voltaire with him as a page. He consented; but Voltaire fell in love with the daughter of madame Noyer, a refugee in Holland, and was therefore sent back to his family. His father would receive him into favor again only on condition of his resuming the study of the law. A friend of his father, monsieur Caumartin, at length released him from the necessity of pursuing this study, by offering him a quiet residence on his estate, where Voltaire became intimate with the elder Caumartin, who awakened in him a great admiration of Henry IV, and of Sully, and gave him a lively idea of the court of Louis XIV. Hence originated the *Henriade* and the *Siècle de Louis XIV.* In 1716, he was imprisoned in the Bastile, on the charge of having written a satire against the government. He remained in confinement a year and a half, and, in this situation, planned a poem upon the league, the result of which was the *Henriade.* He likewise improved his tragedy *Œdipus*, which was brought upon the stage in 1718, and was performed forty-five times in one year. Meanwhile, the poet had been released from prison in consequence of the real author of the satire having disclosed himself, but had been banished from Paris. Now, however, in consequence of the regent, the duke of Orleans, being delighted with the *Œdipus*, he was allowed to return. His father himself was so much pleased with the representation of this play, that he embraced his son with tears in his eyes, and from this time left him to his own inclination. Voltaire now fell passionately in love with the marchioness of Villars, so that his attention was withdrawn, for a time, from poetry; but, having recovered from this passion, he wrote the play of *Artémire*, which was unsuccessful. It was afterwards brought upon the stage, in 1725, under the name of *Marianne*, when it met with much applause, and was often repeated. In 1722, he accompanied madame de Rupelmonde to Brussels, where he became acquainted with Jean Baptiste Rousseau; but the characters of the two were so different, that their acquaintance terminated in a complete separation. In 1723, Voltaire was engaged in completing the *Henriade*, which, about this period, appeared for the first time in London, under the name of the League, but without the consent of Voltaire, and in a very imperfect state. The president Hénault, and other friends, disturbed him so much by their criticisms upon this production, that he threw it into the fire. Hénault snatched it out, with these words: "Your poem is like your hero: notwithstanding his faults, he was a great king, and the best of men." In 1726, Voltaire was again imprisoned, at the age of thirty-two years, in the Bastile. He had offended the chevalier de Rohan, a proud young nobleman, who, in consequence, caused him to be beaten by his servant. Voltaire now learned to fence, and challenged the chevalier, whose relations thereupon procured an order for his imprisonment. At the end of six months, he was released at the intercession of the marchioness de Prie, the favorite of the regent, who admired his poetical talents; but he was obliged to leave the kingdom. He went to England, where his *Henriade* was published by subscription, at the request of king George I and the princess of Wales. From this he obtained considerable emolument. He became acquainted with many men of rank, and distinguished scholars, but gave such license to his wit, that it is said Pope's mother was sometimes driven away, by his conversation, from her son's table. In 1728, he received permission to return to France, where he put his acquisitions into a lottery. By this, as well as by other fortunate speculations (he traded under the name of Du Moulin, and sent ships to Africa), he obtained great wealth, so that, after he came into possession of the estates of his father and brother, his income amounted to nearly 130,000 livres, which he employed in a praiseworthy manner: he particularly aided youthful literary talent. In 1730, he brought the tragedy of Brutus upon the stage; but, notwithstanding much merit, it did not please universally. His talent for dramatic poetry was even doubted; and Fontenelle and La Motte advised him not to employ his genius any more in this manner. His answer was the *Zaire*, a play, which produced a deep and universal impression, and is still a favorite on the French stage. He afterwards attacked the pretensions of the church with such vehemence, in his *Lettres philosophiques*, that the parliament of Paris condemned the book to be burnt; and an order was issued for the arrest of the author. He therefore passed some years in concealment at Cirey, near Vassi, in Champagne, where he was treated with the greatest kindness by the mistress of the estate, the marchioness du Chatelet (q. v.), and wrote his *Elémens de la Philosophie de Newton*, to make his countrymen acquainted with the great discoveries of the English philosopher. He wished, as he expressed it, to exhibit the Briareus in miniature. But scientific labors were by no means so well adapted to his powers as the culture of the *belles-lettres*. He soon returned to poetry, and wrote, in 1736, his *Alzire*, and, in 1741, his *Mohammed*. The attacks in the last upon fanaticism displeased the clergy, and, by the advice of the minister, cardinal Fleury, he withdrew the piece; yet it was afterwards taken under the protection of the pope himself (Benedict XIV), and has remained upon the stage with the reputation of one of the best French productions of its kind. His *Mérope* (1743) was the first French drama which produced a strong effect without the aid of love. On the representation of this piece, the custom was introduced of calling for the appearance of the writer. Before this time, Voltaire had gained the favor of the court by a political service. He corresponded with the crown-prince of Prussia, afterwards Frederic the Great, who had a great fondness for French literature. When Frederic ascended the throne, in 1740, an alliance with him was considered desirable. Voltaire was sent to Berlin, and discovered the ground upon which Frederic had declined the advances which had been made him. The alliance was concluded as soon as France had declared herself against Austria. Voltaire now desired, as the reward of his services, some marks of favor from the court, to facilitate his admission to the academy, which had been opposed by his numerous enemies. He was therefore invited to compose a piece for the celebration of the nuptials of the dauphin, and wrote the Princess of Navarre. The piece was approved, if not by the public, at least by the court; and his reward was the place of *gentilhomme ordinaire*, and historian of France. As such, he planned a history of the then existing war of 1741. It was not, however, until 1746 that he received a place in the academy. In the mean time, he was persecuted with lampoons of all kinds, so that he withdrew, with madame du Chatelet, to the court of king Stanislaus, at Luneville. During this time were produced his tragedies *Sémiramis*, *Orestes*, and *Rome Sauvée*, the subject of which was the conspiracy of Catiline. After the death of madame du Chatelet, in 1749, Voltaire returned to Paris, where he contributed much to form the celebrated actor Lekain. Frederic the Great had hitherto vainly invited him to Potsdam; but being told that Frederic had called Arnaud the *rising* and him the *setting sun*, his self-love was so much touched that he sprang out of bed, and exclaimed, "Frederic may judge of affairs of state, but not of me! Yes; I will go and show him that I am not setting yet." He went to Potsdam in June, 1750. Frederic treated him with the greatest distinction: in a moment of enthusiasm, he even kissed his hand. Voltaire occupied an apartment under that of the king, with permission to visit him at certain hours, and had a table and equipage at his command. He spent every day two hours with the king, and revised his literary productions, when, as he himself said, he never failed to praise the good, and quietly to strike out the bad. But this friendship continued hardly a year. A quarrel between Maupertuis, president of the Berlin academy, and a mathematician named Konig, in which Voltaire took part, drew upon him the displeasure of Frederic, who caused his *Akakia*, a satire upon Maupertuis, to be burnt in the presence of the writer, and sent him his dismission. Voltaire returned to the king the chamberlain's key and the cross of the order which had been conferred on him, with some verses, in which he compared himself to a lover who sends back the portrait of his mistress; but the king soon restored them. Voltaire now made a visit to the duchess of Gotha. During his absence, Maupertuis succeeded in depriving him of the favor of the king, and he concluded to return to France. When he reached Frankfort on the Maine, he was stopped by order of Frederic, because he had with him various productions of the king, who feared that he would use them to his prejudice. He was likewise compelled to resign the chamberlain's key, his order, and his promise of a pension of 22,000 livres. The breach between Frederic and Voltaire was now irreparable. Voltaire wished to reside in Paris; but his *Pucelle d'Orléans* had excited so much displeasure, that he was not allowed to remain in the capital. He now resided for some years at Colmar, where he wrote the Orphan of China, and bought a country seat in the neighborhood of Geneva. Jean Jacques Rousseau sent him his well-known treatise which had gained the prize of the academy of Dijon. Voltaire returned him an answer which, among many flattering remarks, contained the following sentence: "When I read your treatise, I desire to creep upon all-fours." This ridicule made the author of *Emile* his irreconcilable enemy. Soon after, Voltaire took part in the political contentions then prevailing in Geneva; and, having become involved in disputes with many of the principal people, he thought it best to leave the place. He therefore purchased the estate of Ferney, in the Pays de Gex, where he resided the rest of his life, with his niece, madame Denis. He drew manufacturers, and other settlers, into his district, obtained for them, through his influence, important advantages, and reigned like a petty prince among his subjects. Here he erected a new and elegant church, with the inscription *Deo erexit Voltaire*. A decided enemy of tyranny and oppression, he afforded aid and protection to many persecuted persons; among others, to the family of Jean Calas, who had fallen a victim to fanaticism. At that time, he wrote his masterly treatise upon toleration. The granddaughter of the great Corneille also experienced his bounty. In the numerous writings which he composed in this retreat, his free spirit employed the weapons of ridicule, and the boldest eloquence, against all which contravened his ideas of freedom and independence. To the clergy he was particularly hostile, on account of their intolerance and persecuting spirit. But he often injured the cause of religion itself while he attacked its servants. His motives, moreover, were not always of the highest kind. In 1757, the first edition of his works appeared, prepared under his own eye. It reconciled him with Frederic the Great. This monarch renewed his correspondence with Voltaire, and sent him his own bust, of porcelain, with the inscription *Viro immortali*. The empress Catharine of Russia sent him, likewise, splendid presents, accompanied by the most flattering letters. In return for an ivory box, made by herself, and for her instructions (prepared for the direction of a law commission which she had instituted), he sent her a bracelet netted by his own hands. In 1769, a medal was stamped in honor of him, the inscription on which was a verse taken from the *Henriade: Il ôte aux nations le bandeau de l'erreur*. Some French literati, together with Frederic, erected a statue to him, with the inscription *Statue erigée à Voltaire par les hommes de lettres ses compatriotes;* and Louis XV said, "He deserves it." All strangers of distinction who passed by Ferney stopped to testify their esteem for this remarkable man. Joseph II only did not visit him. Nevertheless, Voltaire was by no means happy. Too much accustomed to the constant admiration of the world, he soon became weary of his quiet life, and went, even in his advanced age (February, 1778), once more to Paris. Here he found many admirers, who adored him, and many bitter enemies. He was sensible of the dislike entertained towards him; and, therefore, when stopped by the officers of the customs, with the inquiry if he had any contraband goods with him, he replied, "No, no; there is nothing contraband here but myself." The inquiry of the king, on his arrival, if the decree of the parliament was still in force against him, made him anxious; but nothing further was done to molest him. The French academy sent three of their members to welcome him, though, in similar cases, it was customary to send but one. The actors waited upon him in a body: "We have come," said they, "to beseech you to inspire us with your odes." "I live only for you and through you" was his answer—a proof that he considered his dramas as his chief productions; and, in truth, dramatic works were his last labors. He wrote his *Tancrède* in the sixty-sixth year of his age. The calls upon him were so constant that he felt himself oppressed by them. "I am suffocated," said he, "but it is with roses." Franklin came, with his grandson, to see Voltaire: "My son," said he, "fall upon your knees before this great man." Voltaire gave the boy his blessing, with the words "God and freedom." He had brought with him a new tragedy, *Irène*, which was performed on the 16th of May. The royal family was present, and the piece was received with unbounded applause. The French academy sent him their gratulations on this occasion, and placed his bust by the side of Corneille. At the sixth representation, he came into the theatre; and, when he had sat down in his box, a player entered, and presented him with a laurel wreath; and, at the conclusion of the piece, his bust was also crowned in the theatre. All these excitements, together with incessant literary labors, and the change from his accustomed manner of life, affected his health so much that it seemed as if he could not live much longer. He perceived this plainly: "I have come to Paris," he said, "to find my glory and my grave." He could not sleep; and a large dose of opium, which he took without the advice of his physician, is thought to have hastened his death. When his tenants heard of his sickness, they wished to go to Paris, and carry him, in a litter, to Ferney. He resided in Paris with the marquis de Villette. The latter sent to the principal clergyman of St. Sulpice, to induce him to beg Voltaire to submit to the ceremony which Catholic Christians undergo on leaving the world. The circumstances of the case have been related differently; but it is certain that Voltaire died without receiving the sacrament, in the eighty-fifth year of his age, May 30, 1778. The archbishop of Paris is said to have denied the corpse Christian burial; and it was therefore interred secretly at Scellières, a Bernardine abbey, between Nogent and Troyes. By a decree of the national assembly (1791), his remains were placed in the Pantheon, in Paris, near those of J. J. Rousseau and other great men.—The exterior of Voltaire was quite characteristic. In his countenance, as has been said, there was a mixture of the eagle and the monkey; and, in character, he united the boldness of the one with something of the malice of the other. He was impetuous, irritable, sensitive, but also mild, compassionate, benevolent, cheerful, and lively from principle. With noble views and principles, his actions were not always the most praiseworthy; and many of his good deeds did not flow from the purest sources. He had something vacillating in his character; and, notwithstanding his hatred of prejudice, he frequently bowed to it in a manner which did him little honor. From vanity he flattered the great, and often sought their company for the same reason. His fame did not become great till after his retirement from court. He was too selfish to inspire love, and avarice is said to have had much ascendency over him. Yet he was, in his latter years, the friend of the poor, and the protector of the oppressed. Notwithstanding all his admirers, he gained no friend. He had great talents, but not an elevated character; and his writings want the charm which only a great soul can give. Nevertheless, he often acted nobly. The abbé Desfontaines, to whom he had shown much kindness, published, without any authority, an edition of the *Henriade* from a very imperfect manuscript. Desfontaines became unfortunate, repented of what he had done, and Voltaire became again his benefactor. Being arrested on account of a dishonorable accusation, the abbé owed to Voltaire's influence with madam de Prie his freedom, his honor, and perhaps his life. Desfontaines recompensed this favor by a severe criticism and a bitter lampoon. To a peasant, deprived, by an unjust sentence, of his land, who applied to Voltaire for assistance, he gave 3000 livres, and invited him to settle in Ferney. In company, Voltaire was agreeable, polite, and a complete courtier. The activity of his temperament was so great that he often labored all night. Even in his eightieth year, he worked fourteen hours a day. Among his works, his dramas hold the first place. He is the worthy rival of Racine and Corneille, and his pieces are still favorites with the French. Notwithstanding his great wit, however, Voltaire was not distinguished in comedy. The *Henriade* has many striking passages, but wants true epic characters, and is faulty in its plan. Among his historical works, the *Siècle de Louis XIV et XV*, and the *Histoire de Charles XII*, the *Essai sur l'Histoire générale, sur les Mœurs et l'Esprit des Nations*, abound in penetrating views. His merits are not those of thorough investigation, but of striking and happy description, and sagacious observation. His prevailing defect is the exaggerated estimation of the superiority of the French over other modern nations. His philosophical romances, treatises, smaller poems, narratives, dialogues, &c., show a comprehensive spirit, and great felicity of execution. In the department of fugitive pieces, he is unique. As a prose writer, he is unequalled, so beautiful and polished is his expression, so copious his wit. Among all the French writers, he, perhaps, displays, in the fullest degree, the peculiarities of his nation. The accomplished marchioness du Chatelet, as we have already said, was his intimate friend: hence the *Lettres inédites de la Marq. du Chatelet et Supplément à la Correspondance de Voltaire avec le Roi de Prusse, etc., avec des Notes histor.* (Paris, 1818), is an important addition to his biography.—See *La Vie de Voltaire par Condorcet;* also *La Vie de Voltaire par M.* [Mercier] (Geneva, 1788); *Examen des Ouvrages de M. de Voltaire par M. Linguet* (Brussels, 1788); *Vie littéraire de Voltaire rédigée par de Luchet.* The abbe Duvernet describes him more particularly as a man, and a private man, in his *Vie de Voltaire suivie d'Anecdotes qui composent sa Vie privée* (Paris, 1797); see also *Mémoires sur Voltaire et sur ses Ouvrages par Wagnière et Longchamp, ses Secrétaires* (1826, two vols.). Wagnière was directed by the empress Catharine, who bought Voltaire's library, to arrange it in St. Petersburg, as it had stood in Ferney. The *Vie de Voltaire*, by Mazure, is very partial. His works were published by Beaumarchais, at Kehl, 1784, seq. in 70 vols. 4to and 8vo, and 92 vols. 12mo; and, by Palissot, with notes, at Paris, 1796, seq. The *Pièces inédites* appeared at Paris in 1820. Since 1817, seven editions of the works of Voltaire have been published (the cheapest by Touquet, 1820). In 1823, some unpublished works of his were found in the imperial hermitage, at Petersburg: the most important are a bitter commentary upon Rousseau's *Contrat Social*, and a tale; the latter has since been published. Dupont has lately published an edition of Voltaire's works, in 70 volumes. A tolerably complete, but perhaps not entirely impartial review of the numerous literary contests of Voltaire, is given in the *Tableau philosophique de l'Esprit de M. de Voltaire* (Geneva, 1771).

Volterra; a town of Tuscany, twenty-four miles south-west of Florence, with 5000 inhabitants. It is the see of a bishop, and has a public seminary of education. The ancient Volaterra was one of the twelve principal cities of Etruria, and had 100,000 inhabitants. Some Etruscan monuments still remain: among these are its walls, with a gate, dedicated to Hercules; and the fish-pond, constructed of enormous blocks of stone. (See *Etruria*.)

Volume (Latin *volumen*). The volume of a body has reference to the space which it occupies. To have a correct idea of this, imagine a body immersed entirely in a liquid, which neither changes nor penetrates it. If it is now taken out, and we add new liquid, to raise the contents of the vessel as high as they were when the body was immersed, the amount of the newly-added liquid will give us the volume of the body. Thus we have a simple means of ascertaining the volume of small bodies, the irregularity of which presents some difficulty in the way of determining it by ordinary means. *Volume* must not be confounded with *mass*. On the volume also depends the difference of the absolute and specific gravity. (q. v.)

Volumnia. (See *Coriolanus*.)

Volunteer, in military language; one who serves in the army, or undertakes a particular duty without being obliged so to do: thus officers not unfrequently take part in a campaign, as volunteers. When an enterprise of peculiar danger is to be undertaken, as the assault of a formidable battery, the taking of a square, &c., a call is made for volunteers; and those who survive receive rewards of money, or medals, swords, &c., or promotion. Sometimes there are also bodies of troops consisting entirely of volunteers; e. g. the Prussian volunteer riflemen, attached to each battalion in the campaigns of 1813, '14 and '15, and the volunteer companies of citizens raised, in 1794, in England. These mostly laid down their arms in 1801; but when the war broke out again in 1803, and the intention of the French to effect a landing was announced, the inhabitants of Great Britain rose anew, and the ministers spoke of nearly 500,000 volunteers being in arms.

Volutes. (See *Architecture*, vol. i, p. 340.)

Von; a German preposition, meaning,

in some cases, *from*, or *of*. It is prefixed to the names of the host of noblemen in that country; in which case it is equivalent to the French *de*, and the Dutch *van*, which latter, however, does by no means always indicate nobility. There are a few cases, also, in Germany, in which *von* precedes the name of a commoner. The origin of this signification of *von* was, probably, that the early noblemen were called by their Christian name, with the addition of the castle or village which belonged to them. Before family names became settled (see *Names*), it was very customary, on the European continent, to call any person, commoner or nobleman, by his Christian name, with the addition of the place in which he resided, either changed into an adjective, or with the preposition *of*, *de*, *von*. By degrees, this became a distinction of the nobility in Germany, but not in Holland.

Vondel, Joost van der, one of the most celebrated poets of Holland, of which, however, he was not a native, was born at Cologne, in 1587. His parents, who were Anabaptists, removed to Holland while he was a child, and the poet himself afterwards went over to the Arminians (q. v.), and finally died in the bosom of the Roman Catholic church, in 1659. Nature had endowed him with extraordinary talents, and he derived little aid from education. He has been called the Dutch Shakspeare. Devoting himself entirely to the cultivation of poetry, Vondel first learned Latin and French in the thirtieth year of his age, read the Roman and French writers, and endeavored to supply the deficiencies of his early education. His works display genius and elevated imagination; but the language is often incorrect. His poems compose nine vols. quarto, and include metrical versions of the Psalms, of Virgil and of Ovid, together with satires and tragedies. Among the latter, Palamedes, an allegorical piece relating to the death of Barneveldt, and the Conquest of Amsterdam, are considered the masterpieces of Dutch tragedy. Camper has treated of Vondel, in a Latin prize essay, published at Leyden, in 1818.

Vorarlberg; a mountainous district, now forming a circle of the Tyrol, surrounded by the Tyrol, Switzerland, lake Constance, and Bavaria. It has its own separate constitution, and consists of the lordships of Bregenz, Feldkirch, Pludenz, and Hohenems, with a population of 86,754 souls, on 1578 square miles. The Vorarlberg lordships derive their name from the Arlberg, or Adlersberg (Eagle mountain), which belongs to the Noric Alps, and separates them from the Tyrol. They were annexed to the Tyrol in 1782, and were ceded with it, by the peace of Presburg, to Bavaria; but, in 1814, were restored to Austria. The country is mountainous, and watered by several small rivers, among which, the Lech and the Iller take their rise here. There is much wood and good pasturage, and the raising of cattle is the chief occupation of the inhabitants. The corn produced is not equal to the consumption. There are cotton manufactures here, and the making wooden ware, and the building of boats and houses (the latter exported to Switzerland), employ a great number of the inhabitants. The chief town (Bregenz) has 2500 inhabitants.

Vorstius, Conrad, an eminent divine, born at Cologne, in 1569, was the son of a dyer, who secretly seceded to the Protestant communion. Conrad was sent to Haerlem and Heidelberg, at which university he was created a doctor of divinity. After giving lectures on theology, at Geneva, in 1596, he accepted a professorship at Steinfurt, until 1610, when he received a call to succeed Arminius in the professorship of theology at Leyden. Having accepted this offer, he soon became involved in the controversial war which raged in the Netherlands; and the Gomarists, taking advantage of a book which he had published, entitled *Tractatus Theologicus de Deo*, accused him of heresy. James I, on receiving the book of Vorstius, drew up a catalogue of heresies from it, which he sent to his minister at the Hague, with an order to certify to the states how much he detested those alleged errors. He also caused his book to be burnt in London, and informed the states, who said they would inquire into the case, that if they did not dismiss Vorstius, none of his subjects should visit Leyden. The appearance of a work, by some of his disciples, entitled *De Officio Christiani Hominis*, which contained some anti-Trinitarian doctrines, although formally disclaimed by Vorstius, excited against him so much odium, that he was banished, by the states of Holland, from their territories. (See *Arminius*, and *Arminians*.) He lived for more than two years in secrecy, frequently changing his abode, in fear for his life, and died, in 1622, at the age of fifty-three.

Vortices of Descartes. (See *Descartes*.)

Vosges; a chain of mountains in the east of France, extending from north to south, nearly parallel with the Rhine, and forming a continuation of the Jura mountains, which separate France from Switzerland. Beginning in the vicinity of Belfort, in the ancient Sundgau, they divide Alsace from Lorraine, and, bending towards the German provinces on the Rhine, they terminate, towards the north-east, on the Rhine and the Moselle, under the name of *Hundsrück* (q. v.), and towards the north-west, in the grand duchy of Luxemburg, under the name of the *Ardennes*. Alsace, situated on the German side of the Vosges, has been in the possession of France for a century; yet the language is still German. The highest summits attain an elevation of nearly 4500 feet above the surface of the sea. They have a gentle declivity, and, on the eastern and southern sides, are often covered with vineyards. Great part of the Vosges mountains are covered with forests; and they are rich in game, wild fowl, silver, copper, iron, lead, coal and antimony. They also contain excellent pasturage; and the inhabitants breed many cattle, and make large quantities of cheese, known under the name of *Munster cheese*. The Ill, Lauter, Moselle, Meurthe, Saar and Saonne rise in this chain of mountains.

VOSGES; a department in the eastern part of France. (See *Department*.)

VOSS, John Henry, was born in 1751, in Mecklenburg. Till his fourteenth year, he was educated in the small town of Penzlin. In 1766, he was placed at the school of New Brandenburg. He early devoted himself to the classical languages, and made verses. Being without funds to support him at the university, he accepted the place of tutor in a private family, in order to obtain the necessary means. After having been occupied with instructing five or six hours a day, he found recreation in Greek, music and poetry. In 1772, he went to Göttingen, where he joined a society of young men, at the head of which were Boje and Bürger, and which has since become important in the history of German literature. Voss studied theology, which, however, he soon gave up, in order to devote himself entirely to philology. Heyne was one of his chief teachers; but with him he quarrelled. In 1778, he was appointed rector at Ottendorf. In 1781, after the publication of several treatises, he produced his German Odyssey, a work which, whatever may be the opinion of some respecting it, has rendered this grand poem national with the Germans, and may be compared, in this respect, with Schlegel's translation of Shakspeare. In 1782, the state of his health obliged him to go to Eutin. His disputes with Heyne continued. In 1793, appeared his translation of the Iliad, and that of the Odyssey, in a new form, in which, however, it did not please so much as before, being more simple. Besides many philological and antiquarian works, he published an idyl in the epic form, called *Luise*, in 1795. It had previously appeared in 1783, but was now produced with improvements. It is much liked by many Germans: others consider it an unfortunate attempt to give an epic character to the events of an ordinary life. In 1799, appeared his translation of the whole of Virgil into German. In 1801, he added a volume of pastoral poems to a new edition of Luise, and, in 1802, four volumes of lyric poems, to which was added the *Zeitmessung Deutscher Sprache*, a work of considerable importance. In 1802, his German Homer appeared anew, in an improved form. In 1802, he went to Jena; in 1805, to Heidelberg, in order to aid the new organization of the university. Here appeared, in 1806, his German Horace, Hesiod, and Orpheus the Argonaut; in 1807, a new edition of *Luise*, and of his Homer; in 1808, a German Theocritus, Bion and Moschus; in 1810, Tibullus and Lygdamus, in German; in 1811, the Latin text of the same, prepared from manuscripts. In 1814, he published a much-improved edition of his German Homer. In 1821, appeared his translation of Aristophanes; in 1824, a translation of Aratus. He also undertook to translate, with his sons Henry (died in 1822) and Abraham, the whole of Shakspeare, of which the three first volumes appeared in 1819. This translation cannot stand a comparison with Schlegel's. In 1823, Voss came out, in opposition to Creuzer (q. v.), with his *Antisymbolik* (Stuttgart, 1823). The second volume was published by his son Abraham, from manuscript, in 1826. Almost at the same time, he made an attack on Catholic mysticism, principally in consequence of his friend count Stolberg becoming a Catholic. He died in 1826, in Heidelberg. (See Paulus's *Lebens- und Todeskunden von J. H. Voss*, 1826.) His translations are the best existing of classic authors, and have contributed much to the advancement of German literature; while Schlegel's translations of Shakspeare and other modern writers, and his treatises on romantic literature, have prevented the classical element from becoming excessive.

Vossius, or Vos, Gerard John, a celebrated writer on criticism and philology, born near Heidelberg, in 1577, studied at Dordrecht and Leyden. At the age of twenty, he commenced his literary career by the publication of a Latin panegyric on prince Maurice of Nassau, and, two years after, became director of the college of Dordrecht. In 1614, the chair of philosophy was offered him at Steinfurt; but he preferred the direction of the theological college established at Leyden; and, after having occupied that post four years, amidst the storms of religious controversy, he procured the more peaceable appointment of professor of rhetoric and chronology. Having declared himself in favor of the Remonstrants, he became obnoxious to the prevailing party in the church; and, at the synod of Tergou, or Gouda, in 1620, he was deprived of his office. Through the influence of archbishop Laud, the patron of Arminianism in England, Vossius was indemnified for his loss by a prebendal stall at Canterbury, with permission to continue his residence in the Netherlands. In 1633, he was invited to Amsterdam, to occupy the chair of history, at the *schola illustris*, and continued there till his death, in 1649. Among his numerous works may be specified the treatises *De Origine Idololatriæ; De Historicis Græcis, et de Historicis Latinis; De Poetis Græcis et Latinis; De Scientiis Mathematicis; De Quatuor Artibus popularibus; Historia Pelagiana; Institutiones Historica, Grammaticæ, Poeticæ; Etymologicon Linguæ Latinæ; De Vitiis Sermonis; De Philosophorum Sectis.* A collective edition of his works appeared in 6 vols., folio (Amsterdam, 1695—1701).

Vossius, Isaac, son of the preceding, was born at Leyden, in 1618, and, possessing great natural talents, acquired early reputation among the learned. At the age of twenty-one, he published an edition of the Periplus of Scylax, with a Latin version, and notes. Christina, queen of Sweden, invited him to Stockholm, and chose him for her preceptor in the Greek language. His quarrels with Saumaise having rendered the court of Sweden disagreeable to him, he quitted it in 1649, and returned to his native country, where he employed himself in the production of various learned works. In 1670, he visited England, and was admitted to the degree of LL. D. at Oxford; and, in 1673, having been presented to a canonry, at Windsor, by Charles II, he passed the remaining part of his life in that country, where he died in 1688. Besides editing the works of Scylax, Justin the historian, Catullus, Pomponius Mela, St. Barnabas, and St. Ignatius, he published *Dissertatio de vera Ætate Mundi; De Septuaginta Interpretibus eorumque Translatione et Chronologia Dissertationes*, in which he defended the chronology of the Septuagint version against the Hebrew text of the Old Testament; *De Poematum Cantu et Viribus Rhythmi*, &c. Isaac Vossius was, while in England, intimate with St. Evremond and the duchess of Mazarin; but though he lived much in the society of the great, his behavior was sometimes rude, and his language by no means decent. In his writings, he maintained extravagant paradoxes, while he was generally considered as an infidel in religion. Hence Charles II said he was a strange divine, for he believed every thing but the Bible.

Votiacks. (See *Finns.*)

Votive Tables are those tablets which give information of the circumstances connected with offerings deposited in a temple in consequence of vows.

Vouet, Simon, an eminent French painter, was born at Paris, in 1582, and was bred up under his father, who was also an artist. He accompanied the French embassy at Constantinople, and drew the grand seignior, from memory, after an audience in the train of the ambassador. He then visited Venice and Rome, at which latter capital he acquired great distinction. He remained in Italy fourteen years, when he was sent for by Louis XIII, to work in his palaces, and furnished some of the apartments of the Louvre, the palace of Luxembourg, and the galleries of cardinal Richelieu, and other public places, with his works. He was a good colorist, but had little genius for grand composition, although France was certainly indebted to him for introducing a better taste. Most of the succeeding French painters who gained distinction, were bred under him, including Le Brun, Perrier, Mignard, Le Sueur, Dorigny, Du Fresnoy, and others. He died in 1649.

Voulgarians. (See *Bulgaria.*)

Voussoirs; the wedge-shaped stones which form an arch.

Vow. "A vow," says the Catholic *Dictionnaire de Théologie* (Toulouse, 1817), "is a promise made to God of a thing which we think to be agreeable to him, and which we are not, on other grounds, obliged to render to him. This is what the theologians understand by it when they say a vow is *promissio de meliori bono*. To promise God to do what he commands, or to avoid what he forbids, is not a vow, because we are already obliged so to act." The Catholics adduce numerous passages in the Old Testament to prove that vows are agreeable to God; and their idea of vows is intimately connected with that of good works. To Protestants the theory of vows appears untenable, because nothing can be agreeable to God but what is good in itself; and it is the duty of man, at all times, to aim at the performance of all the good in his power. They consider vows as belonging to ages when the ideas entertained of the Deity, and of our obligations to him, were very crude; and he was looked upon much in the light of a human being. They consider those vows as nothing less than impious, which assume that the Deity can be made to deviate from the path prescribed by infinite wisdom for the consideration of a promise which can have no meaning except between finite beings. The pope has the power, not to absolve from vows, but to substitute some equivalent for the specific performance of them. Catholic writers have therefore maintained that liberty, which is given up in the monastic vows, being the highest good of man, no equivalent can be found for it, and therefore the pope cannot dispense from or commute these vows. (For the monastic vows, see *Monastic Vows*, *Monasteries*, and *Religious Orders*.)

VOWEL (from the French *voyelle*; Latin, *vocalis*); a simple articulated sound, which is produced merely by breathing and a peculiar opening of the mouth, or, at least, with very little assistance from any other organ of speech. We say very little, because the difference of the sounds *e* and *i* (pronounced as in Italian or German) seems to us to depend, in some slight measure, on a curvature of the tongue. Tubes, with various openings, have been invented, which produce the sounds of the five vowels *a*, *e*, *i*, *o*, *u*, as pronounced in most languages on the European continent. The circumstance that all vowels, mainly, and most of them entirely, depend upon the form given to the opening of the mouth, is the reason also, 1. that they can be pronounced without the assistance of another sound; hence they are called, in German, *Selbstlauter* (i. e. self-sounds), whilst consonants are called *Hülfslauter* (sounds which need the assistance of another); 2. that the sound of the vowels can be continued as long as the breath lasts: for this reason, they are the natural expressions of emotions, either with no assistance, or with but slight assistance from consonants. From the circumstance that the vowel sounds require only breathing and the opening of the mouth, they are by far the predominating sounds in the cries or music of animals, the pronunciation of the consonants being more difficult, as requiring the application of the other organs of speech. In the particular that the vowel sounds may be continued as long as the breath lasts, some consonants resemble them, and are therefore called *semi-vowels*, or *half vowels*; these are the liquids *l*, *m*, *n*, *r*, and the sibilant *s*. (See *S*.) The number of vowels in the different languages is not uniform; thus there are in Greek seven, in Latin but five, and in German, if we consider *ä*, *ö*, *ü*, simple vowels, as they really are, eight. (For further observations upon this point, and upon others touched on in this article, see *Voice*.) This difference in number, however, is sometimes founded more on the scarcity or abundance of characters, than on a difference of sounds, since, in some languages, there are many more vowel sounds than signs. In some languages, the sounds of the vowels are uniform, as in Italian and Spanish. Thus *a*, *e*, *i*, *o*, *u*, never change their sound except in as far as they are pronounced long or short. The same is the case in the German language, with the single exception of *e*, which, in many cases, is mute, as in *haben*. In French, *e* is pronounced in three ways—the *è ouvert*, *é fermé*, and *e muet*. (See *E*.) But in no language are the same vowel-characters used to designate so great a variety of sounds, and in no European language are there so many sounds falling between the fundamental sounds, as in English: such are *u* in *but*; *i* in *sir*; *u* in *spur*; *ough* in *through*; *ea* in *heard*, &c. These intermediate sounds are by far the most difficult for foreigners to acquire, and are very rarely learned so perfectly that the foreign accent is not perceptible. Vowels, as has been remarked in the article *Consonant*, very frequently alternate with each other in the fluctuations of language, and are, therefore, of less importance to the etymologist than consonants. In the German language, the change of vowels has become a grammatical form, to indicate, generally speaking, the relation of derivation. The harmoniousness of a language depends much upon the proportion of the vowels to the consonants. (See the article *Consonant*.)

Voyages of Discovery. (See *Travels*, and *North Polar Expeditions.*)

Voyer. (See *Argenson.*)

Vries, Hieronymus van, born at Amsterdam, in 1776, is one of the most eminent living scholars and authors of Holland. His Life of Anaxagoras, and his Eulogy of Hieronymus van Decker, laid the foundation of his reputation, and procured him admission into the Dutch institute. His History of Dutch Poetry (1808, 2 vols.) is a classical work, and gained the prize offered by the society for the promotion of Dutch literature and poetry. Vries has subsequently been one of the most active members of the second class of the institute, which is employed on two numismatical works of the greatest interest for Netherlandish history. One is intended to form a supplement to the works of Van Loon and Mieris, the other to comprise those medals which were struck subsequently to 1723, and could not, therefore, be included in the works of Van Loon and Mieris.

Vroon, Henry Cornelius; a Dutch painter, born at Haerlem, in 1566. Being shipwrecked on the coast of Portugal, during a voyage to Spain, he succeeded so well in painting the storm which caused his misfortune, that he dedicated himself entirely to sea pieces, on his return home. About this time, the earl of Nottingham, lord high admiral of England, being desirous of preserving the details of the defeat of the Spanish armada, in which he bore so conspicuous a part, bespoke a suit of tapestry descriptive of each day's engagement. For this tapestry Vroon was employed to furnish designs; and the tapestry has often excited great admiration in the house of lords, where it was placed. The date of the death of this artist is not recorded.

Vulcanists; those geological theorists who maintain that the earth was at first in a state of igneous fusion, and that it gradually cooled, and became covered only at a subsequent period. According to the Vulcanists, the land was raised up by an internal force; the irregularities which diversify its surface are the effects of volcanic eruptions; and the transported soils have been formed by the disintegrations of the higher grounds. The Neptunists, on the other hand, maintain that the earth was originally in a state of aqueous solution. (See *Geology.*)

Vulcanus; a god of the ancients, who presided over fire, and was the patron of all artists who worked iron and metals. He was son of Juno alone, who, in this, wished to imitate Jupiter, who had produced Minerva from his brains. According to Homer, he was son of Jupiter and Juno; and the mother was so disgusted with the deformities of her son, that she threw him into the sea as soon as born, where he remained for nine years. According to the more received opinion, Vulcan was educated in heaven with the rest of the gods, but his father kicked him down from Olympus, when he attempted to deliver his mother, who had been fastened by a golden chain for her insolence. He was nine days in passing from heaven upon earth, and fell in the island of Lemnos. He broke his leg by the fall, and ever after remained lame of one foot. He fixed his residence in Lemnos, where he built himself a palace, and raised forges to work metals. Bacchus intoxicated him, and prevailed upon him to come to Olympus, where he was reconciled to his parents. Vulcan has been celebrated, by the ancient poets, for the ingenious works and automatical figures which he made. It is said, that, at the request of Jupiter, he made the first woman that ever appeared on earth, well known under the name of Pandora. (See *Pandora.*) The Cyclops of Sicily were his ministers and attendants; and with him they fabricated, not only the thunderbolts of Jupiter, but also arms for the gods and the most celebrated heroes. His forges were supposed to be under mount Ætna, in the island of Sicily, as well as in every part of the earth where there were volcanoes. Venus was the wife of Vulcan. Her infidelity is well known. Her amours with Mars were discovered by Phœbus, and exposed to the gods by her own husband. The worship of Vulcan was well established, particularly in Egypt, at Athens, and at Rome. He was represented covered with sweat, blowing, with his nervous arm, the fires of his forges. His breast was hairy, and his forehead was blackened with smoke. Some represent him lame and deformed, holding a hammer, raised in the air, ready to strike; while, with the other hand, he turns with pincers a thunderbolt on his anvil. He appears, on some monuments, with a long beard, dishevelled hair, half naked, and a small round cap on his head, while he holds a hammer and pincers in his hand. The Egyptians represented him under the figure of a monkey. Vulcan received many other names, among which the most common is Mulciber. He was father of Cupid by Venus. Cicero speaks of more than one deity of the name of Vulcan. One he calls son of Cœlus, and father of Apollo by Minerva. The second he mentions as son of the Nile, and called Phthas by the Egyptians. The third was son of Jupiter and Juno, and fixed his residence in Lemnos; and the fourth, who built his forges in the Lipari islands, was son of Menalius.

Vulgar Era; the common era used by Christians, dating from the birth of Christ. (See *Epoch.*)

Vulgar Fractions. (See *Fractions.*)

Vulgate; the name of the Latin translation of the Bible, which has, in the Catholic church, official authority, and which the council of Trent, in their fourth session, in May 27, 1546, declared "shall be held as authentic, in all public lectures, disputations, sermons and expositions; and that no one shall presume to reject it, under any pretence whatsoever." Even in the early period of the church, a Latin translation of the Old Testament existed, called *Itala*, made after the Septuagint. (q. v.) St. Jerome found that this translation was not always accurate, and made a new Latin translation from the Hebrew, which, however, was only partially adopted by the church, about the year 387. In the sequel, the translations were combined, and formed the *Vulgate*, so called. This grew up between the eighth and sixteenth centuries. Only the Psalms were retained in the ancient form. That its Latin phraseology is impure, if the Latin of the classical Roman authors is taken as the standard, is not, in all cases, an objection. New ideas require new terms; but the Vulgate does not give, in many passages, the sense of the original, and does not correspond to the present advanced state of philology and archæology. Many Catholics have often represented the necessity of a new translation, as much of the old one was made when scriptural philology was in a very low state; and all of them admit that the church does not consider the Vulgate as a perfect translation, but only as the most satisfactory of all the Latin editions. Cardinal Bellarmin maintains that all which the counsel of Trent says, is, that the Vulgate contains no errors which affect points of faith or morals: he does not pretend that it is without fault. The Protestants, however, were of opinion that the Vulgate was to be absolutely rejected, if they desired to rest their faith on the Bible. But what edition of the Vulgate was to be adopted by the Catholics, after the decree mentioned above, became a question, because the editions were various, and differed essentially. A committtee was appointed to prepare a proper text; but, the pope not liking it, it was abandoned. Pius IV, Pius V and Sixtus V then took the greatest pains to form a correct Vulgate. The latter published his edition in 1590, with anathemas against any who should venture to make changes; but this edition had scarcely appeared, when pope Clement VIII published a new one, in 1592, accompanied by a similar bull. Another improved edition was printed in 1593. The differences in these editions are very considerable. The decree of the council above mentioned gives the list of the canonical books, as given in our article *Bible*. St. Jerome inserted, it is true, the apocryphal books; but it is clear that he only considered those canonical, which are now regarded as such by Protestants.

Vulpinite. (See *Anhydrite.*)

Vulture (*vultur*). The vultures have been referred, by ornithologists, to the *accipitres*, or rapacious birds, the same family with the hawks and owls, although they differ in many important points. The feet of the vultures are incapable of grasping and bearing off living prey, although sufficiently powerful to permit them to rest on trees: the mouth is also much smaller, the angle not extending beneath the eyes; the head is disproportionately small, compared with the size of the body, and the neck long and slender; the eyes are even with the surface of the head: in short, their general aspect is widely different from the hawks and owls, and most unexpectedly approaches, in some respects, the *gallinaceæ;* which similitude is expressed in many of their common names. The head and neck of the vultures are more or less deprived of feathers, and covered with short and scattering down. The beak is straight, more or less stout, and the superior mandible curved at the extremity. Their wings are very long and pointed, and their flight exceedingly powerful, so much so, that they often soar beyond the reach of sight. They are voracious and cowardly, feeding chiefly on carrion, but sometimes attack young or sickly animals. Their bodies exhale a disgusting odor. They usually live in companies; and many of the larger species do not quit the lofty chains of mountains, where they build in inaccessible places. Their piercing sight enables them to discover carrion at a great distance. The *condor*, or great vulture of the Andes, is particularly described in a separate article. (See *Condor.*) The king of vultures, *V. papa*, is about as large as a small turkey. It is found throughout the greater part of tropical America. The head and neck are ornamented with brilliant colors. The general color of the plumage is reddish white, with the wings and tail black. This and the preceding species are remarkable for having a comb and fleshy caruncles on the head of the male. Two other small species of vulture are found throughout tropical America, as well as in a great part of the U. States, viz. the turkey buzzard and the carrion crow of the Southern States. The latter is rarely found north of lat. 35°; but the former comes into the Middle States. The plumage of both is black, and they are much alike. In the towns and villages of the Southern States, they are protected by law as scavengers, and may be seen sunning themselves on the roofs of houses, or sauntering about the streets, as familiarly as domestic poultry. The *lammergeyer* inhabits only the loftiest mountains of the eastern continent. It approaches, if, indeed, it does not equal, the condor in size. It differs, however, in some points of structure, from the true vultures. There are, besides, several other species of vulture in various parts of the eastern continent.

Vyasa. (See *Indian Literature*.)

W.

W; the twenty-third letter of the English alphabet, representing a sound formed by opening the mouth with a rounding of the lips, and a somewhat strong emission of the breath. It is one of the sounds which the Germans call *Blaselaute* (breathing sounds). (See *F*.) The English pronunciation of *w* is a peculiarity of that language, though some other languages have a sound coming pretty near it, as *ou*, in the French *oui*: this, however, is not precisely the same, as the sound of *oo* is heard in the pronunciation of *oui* before the sound of our *w*. In German, *w* has the sound of our *v*. Grammarians are not agreed respecting the character of *w*. Doctor Webster says it is a vowel; others say it is sometimes a vowel, sometimes a consonant, like *y*. It seems to us that it must be classified with *h*. The Romans called the *h* neither a vowel nor a consonant, but simply a breathing: so the *w* is a breathing, though stronger and somewhat modified. If we consider it, however, as a letter, it is undoubtedly a consonant, as much as *h* is, and cannot be said to be the same with the Spanish, German and Italian *u*, though, as stated in the article *U*, that letter is used to indicate the pronunciation of the English *w*. The *w*, being a strong breathing, is nearly related to all aspirated sounds, and through them again to the gutturals, so that we find *w* and *g* often interchanged in different languages, as in the words *William*, *Guillaume*; *Wales*, *Galles*, &c.; and we have heard Spaniards, unable to pronounce *w*, use a *g* instead of it, and say *gwe* for *we*. (See *G*.) *W*, like other aspirates, often does not belong to the root, but only serves to strengthen the tone; for instance, the Swedish, Danish and Icelandic *ord*, English *word*, German *wort*; the Icelandic and Swedish *andra*, German *wandern*, English *wander*; the Swedish *ila*, German *weilen* (to tarry), the root of the English verb *to while*; the Gothic *ourt*, Swedish *ört*, German *wurz*, the same which is found in the English compounds *liver-wort*, &c.; the Swedish *önska*, in German *wünschen*, in English *to wish*, and so on. But *w* is by no means always to be overlooked by the etymologist: it often belongs to the root of words, and in many cases it is an onomatopœia, as in *wave*. It has this character particularly in German, which has numerous onomatopœias. *W* is now pronounced by the Germans like our *v*; but it was not always so pronounced. It had, with the early Germans, a sound composed of *u* and *v*, or *f*, as we may conjecture from a passage of Ottfried, in his preface to the Gospels (he says, *Nam interdum tria* U U U, *ut puto*, *quærit in sono*, *priores duo consonantes*, *ut mihi videtur*, *tertium vocali sono manente*); and also from the former orthography of the German words *Frawe*, *shawen*, &c., now written *Frau*, *schauen*. This passage of Ottfried is interesting, as respects the English *w*. In ancient times, an *h* was also written before the *w* in German, as *hwil*, at present *welle* (wave), *hwelcher*, at present *welcher* (Scotch *whilk*, who). This was done particularly in Anglo-Saxon. At a later period, the *h* was put after the *w*, though the pronunciation remained *hw*, for *when* is pronounced *hwen*. It is a peculiarity of some German vulgar dialects to put *m* instead of *w*, and say *mir* for *wir*, and *Mörsing* for *Wirsing*. *W* is a letter peculiar to the alphabets of the Teutonic and Sclavonic languages: those of Latin origin have it not, except in proper names of foreign persons.

Waadtland, or **Die Waadt**; German names for the Pays de Vaud. (See *Pays de Vaud*.)

Waal; a branch of the Rhine. (See *Rhine*.)

Wabash, a river of Indiana, waters the middle and western part of the state, and flows into the Ohio thirty miles above Cumberland river. It is upwards of 500 miles long, and affords good steam-boat navigation, for most of the year, 150 miles, to Vincennes, and for smaller boats 250 miles farther, to Ouiatan. Very small boats ascend to within eight miles of the Maumee. It receives several large rivers, and meanders through a valley of remarkable fertility. The Little Wabash is one of its principal branches, and unites with it only a few miles from the Ohio. This stream may be rendered navigable, for a long distance, by removing a few obstructions. It is eighty yards wide where it joins the Wabash. It rises in Illinois, about forty miles south-east of the Kaskaskia.

Wach, William Charles, professor of historical painting in Berlin, was born in that city, in 1787. In 1813, he entered the army as a volunteer; but as soon as peace was restored, he returned to painting. From 1815 to 1817, he studied in Paris, under David and Legros. The plastic character of his pieces, and his large masses of shade, show the influence of the French school; but he has carefully avoided its exaggerations. In 1817, he went to Rome, and, in 1819, returned to his country, after having executed, in Italy, several fine paintings. In 1819, he was made a member of the senate of the academy of fine arts at Berlin. Among his paintings are the resurrection of Christ, for the altar of the Protestant church in Moscow, and a symbolic representation of Christianity; also the Muses, in the ceiling of the Berlin theatre.

Wachler, John Frederic Louis, professor of history in the university of Breslau, was born, in 1767, at Gotha, studied theology, philology and history. In 1788, he was made *professor extraordinarius* in Brinteln. In 1801, he was made professor of philosophy in Marburg, and, in 1802, *professor ordinarius* of theology. In 1805, he went, as professor of history, to Breslau. His writings are numerous: they are on theological, philosophical and historical subjects. Some of the last sort have much merit, though the writer may sometimes fall into indistinct generalities. Among his works are *Lehrbuch der Geschichte* (1816; 5th ed., 1828); *Philomathie* (3 vols., 1819—21); Manual of the History of Literature (4 vols., 1822—24); History of Historical Inquiry and Art, since the Revival of Letters in Europe (Göttingen, 1812—20); Manual of Literary History (1827); his Theological Annals, and New Theological Annals (completed in 1823).

Wad, or **Wadding**, in gunnery; a stopple of paper, hay, straw, old rope-yarn, or tow, rolled up like a ball, or a short cylinder, and forced into a gun, to keep the powder close in the chamber, or put up close to the shot, to keep it from rolling out.

Wad Black. (See *Manganese*.)

Wafer. (See *Cements*, and *Sealing-Wax*.) We only add here, that an antiquarian of the eighteenth century, Mr. Spiess, a German, says that the oldest seal with a red wafer, which he had ever found, is on a letter written at Spire, in 1624, to the government at Bayreuth. —See Beckmann's *History of Inventions and Discoveries* (London, 1797).—The use of sealing-wax is universally considered more polite than that of wafers, because the latter is easier and less formal, hence more appropriate for the business style.

Wagenaar, John, historiographer to the city of Amsterdam, where he was born in 1709, and died in 1773, is one of the most distinguished scholars of his country, and, in particular, one of the best historians of Holland. His principal work, *De Vaderlandsche Historie vervattende de Geschiedenissen der Vereenigde Nederlanden*, or History of the United Netherlands until 1751, was published at Amsterdam, in 21 vols. (1749—60). In 1788, a continuation of this work, from 1776 to 1802, appeared, at Amsterdam, under the title of *Vervolg van Wagenaar Vaderlandsche Historie* (48 vols.), and, in 1789, volumes 22, 23 and 24, containing the history of the period from 1751 to 1774. His other works are a description of the United Provinces (12 vols., 1739), and a Description of Amsterdam (3 vols., folio, 1760), and some polemical treatises on theological subjects.

Wagering Policies. (See *Insurance.*)

Wages. The cost of an article is made up of that of the materials consumed, and the compensation for the use of the land, buildings and implements employed, and the labor, skill and superintendence requisite in its production, with interest on these outlays until the product is completed and ready for the market. When we inquire respecting the rate of wages, we are first to consider what extent we give to the term; whether we comprehend the compensation given for skill and industry, of all descriptions, employed in the production, distribution, and even use and consumption, of all sorts of commodities; for wages are paid to a servant who waits at a table, or a coachman who drives a pleasure coach, as well as to a miller, teamster, or seaman, though the former are not, like the latter, employed in giving any additional value to any article by producing or transporting it. If we divide the whole annual value produced in a community into three parts, and assign one to pay rent, another to pay for the use of capital, and a third for wages,—taking wages in its most comprehensive sense, as including all that is paid for industry and skill of all descriptions,—then the first material consideration is, What is the mass of the products in proportion to the land, capital and labor employed? for the same quantity and quality of land, capital and labor will yield a greater annual product in one community than in another. What is the aggregate mass or fund out of which the dividend is to be made? The aggregate productiveness of England, for instance, will vastly exceed that of Spain in all these particulars; for the lands are made more productive, the labor is more skilfully applied, and the capital is more rapidly carried through the different forms of production, and transported through the different places in its way to that of final consumption; and, consequently, the same capital is more effective, or, in other words, contributes to a greater mass of production in the same time. We institute this inquiry as to the aggregate mass of annual production in comparing the condition of one community with that of another. One community may have twice as great a fund to divide as another, from the same aggregate means of production; and if the distribution is made in precisely the same proportions among the several interests, the compensation will be twice as great in one case as in the other. This effectiveness of the labor and means of production in a community, is a matter of the most weighty consideration, and goes far in determining the condition of the population. This gives us two modes of comparison, as to the rate of wages in any two communities, the results of which may be very different. If we ask whether labor and skill, taking the whole mass of both, of all descriptions, be better rewarded in England or in Spain, the answer may be, that a greater quantity of corresponding articles goes to compensate the same labor and skill in England, but that a greater proportion of the whole mass of annual products goes to compensate labor and skill in Spain. To make the distinction more plain—a laborer in England may earn a yard of cloth, and one in Spain but half a yard, of the same quality, in a day; so that the English laborer gets absolutely twice as much compensation as the Spanish. But, owing to greater skill and advantages, the English laborer may produce four times as much cloth, or materials for cloth, as the Spanish laborer in the same time. Therefore, though the English laborer gets twice as great a quantity, the Spaniard gets twice as great a proportion of the whole product. The wages of one will accordingly be twice as great as that of the other, and *vice versa*, according as we make the comparison in one or the other way. The ordinary mode of comparison has reference to the absolute compensation, that is, the quantity of valuable vendible things commanded by the same labor. All laborers want food, clothing and shelter; and he that can command the best for the same labor is the best paid. In making the comparison, we may regard the money that each can earn; but then we must go further, and inquire what the same weight of silver or gold will purchase in each of the two countries. To the man who expends his wages where they are earned, a given amount of silver or gold is valuable only in proportion to the things that he can produce in exchange for it. To all practical purposes, therefore, labor may be higher paid in the U. States at a dollar than in the West Indies at two dollars. It is, therefore, surprising to see economists making comparisons of the money rate of wages in different countries, as if that gave any practical satisfactory result, without also inquiring further what the same money will purchase in each of the two countries. For instance, a laborer at Buenos Ayres can earn an ox in three days, which, in New England, would cost him from one to three months' wages, and in England still more; whereas the English or New England laborer can earn more cloth in the same time than the one at Buenos Ayres, though the money price of wages is highest in the latter place. In all the speculations and treatises upon this subject, we do not know of any full and satisfactory comparison of the real rate of wages, for the corresponding kinds of labor, in different countries. If we limit the inquiry to the same community, we first ask what is the aggregate production, and how great a proportion of the whole annual product goes to labor and skill, and how much to rent and capital. And here we readily perceive a gradual change in the course of the progress of a community; for, in the early stages of improvement, and while the population is comparatively thin, as in the U. States, the rent, and so the value, of lands is low; that is, the holder of a particular piece of cultivated land receives but a small proportion of the annual products; but, as the population thickens, the proprietor of the same tract will receive a greater proportion of the whole products of the same cultivation than his predecessors. Take the instance of the same crop of grass, on the same piece of ground, for a hundred successive years, from the time of felling the forest, until a populous town has grown up in the neighborhood; the wages for cutting and securing the crop will, at first, be one half or three quarters of its value, and will diminish, by degrees, to one fifth or one tenth, and the value and rent of the land will rise accordingly; that is, land becomes comparatively scarce in proportion to the population, and the demand for its use; and all raw products, that is, all products the value of which consists mostly of rent, will rise in comparative value. This may take place, in a great degree, through a whole country, as has been the case in England. But the whole territory does not continue to produce merely the same quantity, since, as the wants and consumption of the community increase, the labor bestowed upon the same area will be increased for the purpose of augmenting the quantity of products, so that the land-owner may, in fact, receive a less quantity, and a less proportion of the products, and yet have a higher rent for his ground every successive year, because the quantity which he does receive, on account of its increased comparative value, will command, on the whole, more of the things for which he wishes to exchange it. During the same time, the laborer will receive, for the same labor, a less quantity and less proportion of the raw products; and yet, taking into consideration all that he wants to consume, he may, on the whole, continue to have as high wages as at first, whether we regard the absolute quantity of consumable things which he can command by his labor, or the proportion which it will bear to the whole annual product of the community. Though some parts of his food, and all his fuel, may cost him more labor, other parts of his food, particularly that brought from abroad, and his shelter and clothing, and especially all those articles that come under the class of moderate luxuries, will probably cost him less labor. In the progress of a community in which property is well protected, accumulation gradually reduces the rate of interest, thus reducing the proportional amount of the cost of production, as far as it depends on the use of capital, whereby a compensation, in part at least, is made for the enhancement of rents. All the inventions and facilities to production, transportation and exchange, also contribute to make a similar compensation. From these causes, it may happen that, in the advancement of the population, wealth, arts and industry of a community, though a smaller proportion of the whole products goes to compensate mere labor, still a greater absolute amount of products may go to compensate the same labor; that is, a laborer may be able to supply himself, by his industry merely, with a greater quantity of necessaries and luxuries. In some respects, the laborer suffers by the advancement of a community; in others, he is benefited. But another view of the subject is of the very greatest importance in considering the condition of a people, namely, the distribution of that portion of the annual products that is allotted to industry and skill among the different classes of the industrious. It is not possible to estimate exactly what proportion the compensation for making out a legal process, visiting a patient, officiating at the celebration of public worship, superintending the concerns of a bank, commanding a ship or a regiment, &c., ought justly, or for the best interests of a community, to bear to the wages of mere manual labor. requiring very little skill; nor, if we could determine this proportion, would it be practicable to establish it. The law has interposed, in many instances, in different countries, to regulate the price of labor and commodities; but it is now universally admitted that any such interpositions are most usually ineffectual, and always prejudicial. But though positive regulations, in this respect, will never remedy the evils of an unjust distribution, yet a community may be so constituted, and so situated, that the spontaneous operation of internal causes will effect a nearly just apportionment of the rewards of skill and industry among the various classes of the industrious. To ascertain what circumstances will have this operation, we must inquire what class first suffers from an inequality; and we find it to be those who depend wholly on their labor for subsistence. This is the part of the population where misery begins; and thence it spreads and accumulates until it is felt by the whole; for every part of the population will inevitably sympathize, more or less, with every other. It is utterly impossible for any class so to separate itself from the rest as not to be affected, directly or indirectly, by their enjoyments and sufferings. How, then, can the wages of mere labor, requiring very little skill, be sustained at a just rate, so that the laborer shall have his fair proportion of the annual products? This can be done only by diffusing and maintaining good habits, industry and intelligence among the poor class. It should be the policy of every society to make all the influences, moral, political, economical and social, bear, with the greatest possible energy, upon this point. It is not practicable to sustain this class by external helps: when they have once become degraded, it is scarcely possible to renovate and restore them. The true doctrine is that of prevention.

Wagner, Ernest; a German poet, born in 1768, and died in 1812. His poem, called Wilibald's Views of Life, is celebrated. His complete works were published in 1827 et seq., at Leipsic.

Wagnerite; a mineral, found in complicated crystals, the primary form of which is an oblique rhombic prism, whose lateral planes incline under angles of 95° 25′ and 84° 35′. Lustre vitreous; color several shades of yellow, sometimes nearly orange-yellow, often inclining to gray; streak white; translucent; hardness nearly that of feldspar; specific gravity 3.11. It consists of

Phosphoric acid,	41.73
Fluoric acid,	6.50
Magnesia,	46.66
Oxide of iron,	5.00
Oxide of manganese,	.50

It is found in veins of quartz, embraced in clay-slate, and occurs near Werfen, in Salzburg.

Wagons most probably originated from rude vehicles dragged on cylindrical logs, which must soon have suggested the idea of the axis and solid wheel, even now used in Portugal by the peasants. According to Moses, Egypt was the country where wagons were first used. The Chinese call the inventor Hiene-Yuene. The Greeks attributed the invention to Erichthonius, fourth king of Athens, and say that he used them in consequence of lameness. Wagons with two wheels may have been the first constructed; but Homer mentions four-wheeled wagons, the invention of which was ascribed to the Phrygians. Whoever first conceived the idea of an axis was a most ingenious man; and he who applied it to wheels and wagons has become one of the greatest benefactors of mankind. Much time elapsed before wagons were used for pleasure carriages. The sedan chair and horseback were long preferred. In war, use was sooner made of the wagon. Moses mentions the war-chariots of Pharaoh. Theseus is said to have introduced chariots among the Greeks. The horses were covered with iron scales. At the end of the pole lances were fastened, and at the side and below were scythes. These chariots were driven into the ranks of the enemy. The Greeks, besides, used two-wheeled chariots, each containing two persons, one of whom drove while the other threw spears. The chariots were open behind, and had low wheels. The Romans used them early. In the twelve tables (q. v.) the *arcera* is mentioned. The Romans gave different names to the wagons, according to the purpose to which they were applied, as *carpentum*, a two-wheeled vehicle, with a vaulted covering, used particularly by the Roman ladies; *carruca*, a kind of state coach (q. v.); *cisium*, *essedum*, &c. They had also triumphal chariots (*currus triumphalis*). Wagons are drawn by men or beasts, or propelled by machinery. It is reported that, at the *panathenæa*, a galley was moved through the city by internal wheel-work. From the time of Roger Bacon (in the thirteenth century) to our days, many trials of locomotive wagons have been made, of which the steam-wagon, lately brought to such perfection, is the most important. The wind has also been frequently used to propel wagons. Simon Stevin, of Bruges, invented a sailing wagon for twenty-eight persons, which, on even ground, is said to have travelled fourteen Dutch leagues in two hours! Mr. Slater, an Englishman, travelled in a sailing wagon from Alexandria to Bassora.—Respecting the invention of wagons, harnesses, &c., among the ancients, see the work of Ginzrot (Munich, 1817, 2 vols.). Kites have also been used to propel wagons. (See *Velocipede*, and *Steam*.)

Wagram, Battle of, on July 5 and 6, 1809, gained by Napoleon over the archduke Charles. It decided the fate of Austria, on the same field on which Rodolph of Hapsburg (q. v.), in 1278, had been victorious over the proud Ottocar, and laid the foundation of Austria's power. The severe loss which Napoleon had sustained in the battle of Aspern (q. v.), on the occasion of his unsuccessful attempt to pass the Danube, made repose necessary for his army. He also needed reinforcements. These he received in the army of the viceroy of Italy, who had forced the Austrians, at last, from that country to Hungary. Bernadotte was also approaching with the Saxons; and other divisions were on the way. The archduke Charles, on the left bank of the Danube, was in a less fortunate situation. His loss, also, had been severe; and his army consisted, in a great measure, of raw troops hastily levied. Napoleon remained in Vienna, and prepared every thing for a decisive struggle, whilst his antagonist appeared to stand merely on the defensive; at least nothing was done by him to disturb the French in their preparations on the islands of the Danube. Heavy ordnance was carried from the arsenals of Vienna to the well-constructed works on these islands. Materials for bridges were provided, and every precaution taken to prevent a second failure in the attempt to pass the river. The position of the antagonists permitted the most accurate knowledge of all the movements of both armies. July 1, Napoleon concentrated his forces, and fixed his head-quarters at Lobau. Presburg had been occupied by Davoust a few days previously. Vandamme guarded the Danube as far as Lintz. The whole number of the French forces has been estimated at 180,000; and if this number is overrated, it is certain that the Austrian force was not half as great. From July 2, the French attempted, at several points on the islands, to establish a secure communication with the opposite bank, without being prevented by the fire of the Austrians; and on July 4, Napoleon concentrated the greatest part of his troops on the island of Lobau. At ten o'clock in the evening, the first troops, in small numbers, passed in boats over the Danube, and established themselves on the left bank, during a tremendous storm, and supported by a warm fire from all the batteries, directed against Enzersdorf and the Austrian redoubts erected on those spots where a landing was expected. Enzersdorf was in flames, and shed a brilliant light on the Danube. With great skill and promptness, excellent bridges were thrown over the river, and as early as two o'clock, the whole army had reached the left bank. It seems to have been in consequence of a settled plan, that Charles did not endeavor to prevent the passage of Napoleon, and that the Austrians immediately made a retrograde movement. On the morning of the 5th, the French army extended itself in the Marchfeld (a plain many leagues in length, on the left bank of the Danube, and containing the town of Wagram). A numerous artillery along the whole French line played incessantly. The Austrians were slowly forced back during the day. In point of fact, the archduke Charles had at this time but three divisions to oppose to the French forces. It was not till towards night that his other forces could be brought into action. It is impossible for us to give the details of the battle, or to describe the repeated assaults on Wagram by the Saxons. The French army bivouacked on some places very near the enemy. Some have believed that the retreat of Charles, on July 5, was in order to place the French troops between his forces and those which were approaching, under the archduke John, from Hungary. But the army of the archduke John was much too weak to produce a decisive effect, and, moreover, would have been opposed by the disposable French divisions, and the 10,000 Bavarians under Wrede. Early in the morning of July 6, the extreme left wing of the French, under Bernadotte and Masséna, was extended to Hirschstätten; the centre, comprising the guards and the Italian army, was at Raschdorf; to the right were Marmont and Oudinot; and Davoust was on the extreme right. The archduke

Charles now projected an attack, *en echélon*, from his right, against the French left. Thus it was hoped that the Austrian army might relieve itself from the extreme pressure upon its left wing. At first, this attack was successful: the French were forced back as far as Enzersdorf. The Austrian centre was not so fortunate: it could not advance equally with the right wing, and thus a dangerous extension of the Austrian forces took place. Napoleon knew how to keep them in this situation, and thus to obstruct their further attacks; and soon after, having turned the Austrian left wing, he began to act on the offensive, and endeavored to decide the battle by destroying the enemy's centre. Masséna attacked Aderklaa most violently; and, had he succeeded, all would have been lost; but the Austrians fought with great bravery against the cavalry, artillery and guards, and repeated attacks were repulsed. Had the archduke John arrived at this time on the left wing, as he was ordered to do, a favorable result might have been obtained; but he did not come up, and the French troops spread far to the right. Upon the third attack, they occupied the height of Markgrafen-Neusiedel, and the Austrian right wing was deprived of the advantages which it had gained. The Austrians retreated. The archduke John, it is said, was detained near Presburg in collecting his corps. It was not until late in the evening, that he heard from the field of battle that every thing was decided. To save his own troops, he again retreated from the Marchfeld. Both armies had displayed great valor. The loss of the Austrians may have amounted to 27,000 men killed and wounded (they had taken, however, 7000 prisoners, twelve eagles and colors, and eleven cannons). The loss of the French cannot be reckoned at less. On the 7th, 9th and 10th, the archduke retreated, constantly fighting, to the heights of Znaym, where Marmont and Masséna reached him. On the 11th, a battle was fought, which, however, was interrupted by the armistice offered by Austria, and concluded, July 12, at Znaym, after which the negotiations for peace commenced. For information respecting the whole campaign, see general Pelet's (aid-de-camp of Masséna) *Mémoire sur la Guerre de* 1809, *en Allemagne, avec les Opérations particulières des Corps d'Italie, de Pologne, de Saxe, de Naples, et de Walcheren* (Paris, 1825, seq., 4 vols., with an atlas).

Wagtail (*motacilla*); small birds which seem to be peculiar to the eastern continent. They differ from the warblers only in their longer legs, more slender form, and longer tail. They never perch on trees or shrubs, but frequent the margins of ponds and water-courses, and are continually elevating and depressing the tail; hence the name. The common European wagtail (*M. alba*) is a familiar bird, which seems to seek the society of man and domestic animals, and is even seen frequently to rest upon the backs of cattle while they are grazing. The vicinity of mills is observed to be its favorite resort. The plumage is a mixture of black, white and gray. It is widely diffused throughout the eastern continent.

Wahabees, Wahabites, or **Wechabites**, is the name of several Arab tribes, who profess the religious faith which Sheik Mohammed, son of Abdel Wahab, taught in the middle of the eighteenth century, and, like the founder of the religion of the Koran, sought to propagate by art and courage. Sheik Mohammed, belonging to the great tribe of the Tamini (born in 1729, in the town of Ajen, situated near the desert, in the district of Al Ared), had acquired great learning in Bassora, Bagdad and Damascus. He taught at first in Ajen, and soon made proselytes of the inhabitants of the district of Al Ared. Claiming divine inspiration, he taught, like the Koran, the doctrines of which he but partially received, the existence of an only God, the Author of the world, the Rewarder of the good, and the Punisher of the bad; but he rejected all the stories contained in the Koran, especially those concerning Mohammed, whom he considered merely a man beloved of God, but branded the worship of him as a crime directly opposed to the true adoration of the Divinity. He also prohibited the wealth and splendor which are found in the mosques of the Mohammedans. All who should oppose this new doctrine were to be destroyed by fire and sword. Mohammed first converted to his new doctrines the sovereign of Derayeh and Lahsa, Ebn-Sehud, whom he proclaimed prince (*emir*) and protector of the new sect, of which he declared himself high-priest, thus separating the spiritual and secular authorities, which were afterwards hereditary in the families of Ebn-Sehud and Sheik Mohammed. The principal seat of the Wahabees was the city of Derayeh, in the province of Nedsjed, and Jamama, 250 miles west of Bassora. As the votaries of the new faith were all inspired with the highest enthusiasm, prepared for all trials,* indefatigable, brave and cruel (conversion or death being their watchword), their dominion spread with incredible rapidity among the surrounding Arab tribes, of which, in a short time, twenty-six were subjugated, incorporated with the original Wahabees, filled with hatred of Mohammedanism, and taught to delight in plundering the treasures of the mosques. Sehud's son and successor, Abd-Elaziz, could bring into the field 120,000 cavalry. Well provided with camels and horses, and armed with sword and spear, the Wahabites, though resembling the Bedouins (q. v.), and destitute of any considerable artillery, which they obtained only by conquest, were dangerous enemies. The nature of the country, their mode of life, and their religious creed, formed their character, which, from the mountainous regions of their original seat, is even more savage and bold than that of the first followers of Mohammed. The disorders which prevailed in all parts of the dominions of the Porte, including the Arabian countries under its protection, was especially favorable to the enterprises of the Wahabees, who, from their seat between the Persian gulf and the Red sea, had reached several parts of Asiatic Turkey, before the slightest measures were taken to put a stop to their devastations and conversions. In 1801, the pacha of Bagdad first received orders to proceed, with the tribes which had adhered to Mohammedanism, against the Wahabees, who, however, by great presents, bribed the generals sent against them to retreat, and then attacked the town of Iman Hussein, destroyed it, and, after acquiring much plunder, fled back to their deserts. On this occasion, they also pillaged the mosque of Ali, which was highly venerated by the Persians. The Persian monarch, Fath Ali, threatened them with his vengeance, but was prevented from executing his purpose by civil wars. The daring Wahabites now turned an eager gaze upon the far greater treasures of Mecca, the holy city. Here Ghaleb, a younger brother, had deprived his elder brother, Abd-Al-Mein, of the sherifate. On pretence of avenging this wrong, Abd-Elaziz sent his son Sehud, with 100,000 men, to Mecca, where he put Ghaleb to flight, but was prevented, for a while, from conquering the city, by the arrival of the great caravan, under the escort of the pacha of Damascus, who, however, entered into a treaty, not to stay more than three days in Mecca, and not to interfere in the contest of the brothers respecting the sherifate. After the departure of the caravan, the Wahabees took the holy city without resistance, murdered many sheiks and Mohammedans, who persisted in their religious faith, and reinstated, indeed, Abd-Al-Mein, but destroyed all the sacred monuments, and carried off immense treasures. Leaving behind only a small garrison of 100 men, Sehud next attempted, in vain, the conquest of Jidda and Medina, after which he returned to Derayeh, where, meanwhile, his father had been murdered, in 1803, by a Persian. Sehud was now prince of the Wahabees. Their high-priest was Hussein the Blind, the eldest son of Sheik Mohammed. The misfortunes which they suffered were soon repaired. In 1806, the Wahabees appeared more numerous than ever; plundered the caravans of pilgrims going to the holy sepulchre; got possession of the Mahmel (a splendid box, in which the grand seignior sends, every year, the presents destined for the tomb of the prophet); and conquered Mecca, Medina, and even Jidda, marking their path by bloodshed and conversions, among which, that of the mufti of Mecca excited the most astonishment. The fear of the Wahabees spread throughout the East, and even the British were apprehensive that their commerce would be endangered, several bands of warriors having proceeded to the Persian gulf, formed a junction with the pirates, and disturbed the communication between Bassora, Mascat and India. The British, therefore, took the imam of Mascat, against whom his brother had rebelled in the country of Oman, under their protection, and, to defend him against the Wahabees, sent him, from Bombay, in 1809, a fleet and army. The chastisement of their common enemies was fully effected in several battles on the sea and coasts, and especially by the demolition of their chief place of assembling, Ras el Elyma (Kherim), where 3200 inhabitants were killed, and 1600 taken prisoners. On the other hand, the British, as a condition of their further assistance, stipulated with the imam for the islands of the Persian gulf, Bahrein and Zebora, celebrated for their rich pearl fisheries. In 1810, the sublime Porte summoned Mohammed Ali, pacha of Cairo, and the pachas of Damascus and Acre, to undertake an expedition against the pacha of Bagdad, Jussuff Pacha, and his allies, the Wahabees. The pacha of Acre obeyed this command with equal activity and bravery, and conquered Bagdad, the pacha of which, deprived of his treasures, fled to his father, the pacha of Cairo, who had been ordered to take part against him, and with whom he found a favorable reception. Thus the quarrels and jealousies of the Turkish pachas, and of the Persian khans, greatly favored the progress of the Wahabees. Soon after the massacre, perpetrated, by Mohammed Ali, among the beys and mamelukes at Cairo, the Wahabees formed a junction with the relics of them who had fled to Upper Egypt. Mohammed Ali now prosecuted, with indefatigable energy, his preparations for the annihilation of the Wahabees. He conquered Yambo and Nabala in 1811, and, as the fruits of three victories, sent three sacks of Wahabees' ears to Constantinople. No subsequent progress, however, was made: on the contrary, Jussuff Pacha, who now fought, with his father, Mohammed Ali, on the side of the Turks, was forced to retreat (he died soon after of the plague). But the Wahabees, betrayed by their ally, the sherif of Mecca, and abandoned by several Arab tribes, suffered new defeats in the defiles of Sofra and Judeyda, and were altogether driven from the route to Medina. This holy city was weakly garrisoned, and, therefore, easily conquered by the Turks. Mecca, also, soon after fell into their power. The solemn delivery of the keys of the regained cities of the faith, was celebrated with great rejoicings at Constantinople. These victories had done much for the security of Mohammedanism, which finds one of its chief supports in the possession of Mecca and Medina, and the uninterrupted pilgrimages of the faithful to those cities. This formidable sect was as yet, however, far from being suppressed. Mohammed Ali, pacha of Egypt, therefore, renewed his preparations; but he lost, by surprise, a fortified place called Kumsidal, containing great stores of arms and ammunition, which the Wahabees took by surprise. The Persian disturbances were also very favorable to them; and they found opportunity to form a new union with several Arab tribes. But their daring was not accompanied with prudence. They undertook the boldest predatory excursions, while their enemy, the pacha of Egypt, adopted judicious measures for their entire overthrow. After the death of their sovereign, Sehud II, in 1814, when quarrels arose on the subject of the succession, they suffered several defeats. A decisive victory was obtained by Mohammed Ali, in the beginning of 1815, at Bassila, not far from the city of Tarabe. It was, nevertheless, difficult to attack them in the centre of their power. Ibrahim, the son of the pacha, finally succeeded, in 1818, in inflicting a total defeat on the Wahabees, under their sovereign, Abdallah Ben Sund, and in blocking them up in their fortified camp, four days' march from their capital, Derayeh. The camp was stormed September 3, eighty pieces of artillery taken, 20,000 soldiers put to death, and Abdallah himself made prisoner. The inhabitants of the city now surrendered, but demanded an amnesty, and that their lives and houses should be spared; but the conquerors declared that the sultan alone could grant or refuse these terms. Meanwhile, the arrival of the prisoner, who, both as a rebel and an apostate, was of great political importance to the sublime Porte, was celebrated in Constantinople as a national triumph. With his mufti and treasurer, he was then carried in chains before the sultan, tried by the divan, and beheaded, with his fellow prisoners, December 17, 1818. Detached bands of Wahabees are still said to rove through the desert; and the heroic daughter of the founder of the sect is said to be their leader; but the sultan, having left the conquered to the pleasure of the pacha of Egypt, he entirely destroyed their principal seat; and the inhabitants, after the loss of their property, were dispersed.* The severity of Ibrahim, who is remembered as the scourge of Arabia, and the curse of Derayeh, did not, however, put an end to the Wahabite reformation, nor to the spirit of resistance by which its abettors were animated. The war was renewed in 1824, with as much ferocity as ever, and apparently with increased means, on the part of the insurgents, of bringing it to a successful issue. It was protracted during the three following years, with alternate advantage; having been, during the latter portion of that interval, allowed to slumber, owing to the struggle made by the Greeks in the Morea, to recover their liberty. In this war, Mohammed Ali (q. v.) first put in practice his improved system of tactics, on the European method; and his success, as in his recent campaigns in Syria, was owing to his being provided with soldiers disciplined by European officers.—See Planat's *Histoire de la Régénération de l'Egypte* (Geneva, 1830), for an account of these campaigns against the Wahabees.

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* The use of coffee and tobacco, as well as of silk clothing, was forbidden by their law.

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* Derayeh, in the Arab province of Nedsjed, protected by deserts and mountains, was situated in 42° 14′ E. lon., 26° N. lat. (in the great valley of Wadyhenisch, 300 miles long), surrounded by gardens and orchards, twelve days' journey from Bagdad, and 130 leagues east of Medina, 100 leagues south-west of Bassora, and 160 leagues south-east of Jerusalem. It was two leagues long, half a league broad, exposed to frequent inundations, and contained 2500 houses of stone, 28 mosques, and 30 schools. The former rulers resided in the suburb of Tereif. According to some accounts, the Wahabees were divided into three classes—soldiers, field laborers, and artisans; but since, like the other Arabs, every able man was destined for predatory excursions, it is more correct to divide them into priests, soldiers, and slaves. According to late accounts, the sect of the Wahabees is still very numerous in Arabia.

Wahlenberg, George, lecturer on botany in the university of Upsal, and superintendent of the museum of the society of science in that place, was born in the province of Warmeland, in 1784. While a student at the university, he distinguished himself by his progress in scientific studies, and, soon after leaving the university, was enabled, by the assistance of the Swedish patriot baron Hermelin, and of the scientific societies of Upsal and Stockholm, to enter upon a course of botanical and geological inquiries, which led him to make excursions into the remote parts of the Scandinavian peninsula, through Swedish and Norwegian Lapland, and to Gothland. Having examined Scandinavia, he set out upon similar scientific expeditions to foreign countries. In 1810, he visited Bohemia and Hungary, examined the Carpathian mountains, travelled in Switzerland, and, after visiting the principal German universities, returned to Upsal, in 1814. His *Flora Lapponica*, *Flora Carpathorum*, *Flora Upsaliensis*, and *Flora Suecica* (2 vols., 1824), take a high rank among works of this nature. Wahlenberg has likewise written some geological essays of value.

Wahlstadt; a generic German term for *field of battle* (from *Wal*, which means *fight*, and also *dead body*; hence *Walhalla*, or *Valhalla*). As a geographical name, it belongs to a large village in Silesia, near Liegnitz (q. v.), on the Katzbach (q. v.), where Henry II, duke of Silesia, fought a bloody battle, April 9, 1241, against the Tartars, in which he lost his life, and the latter were victorious. In memory of this battle, the place and village were called *Wahlstadt*. In the same place, Blucher (q. v.) was victorious over the French, Aug. 26, 1813 (see *Katzbach*), and, in reward of this and other victories, was made prince of Wahlstadt.

Wahoo. (See *Elm*.)

Waifs. (See *Estrays*.)

Wakefield; a town of England, in the West Riding of Yorkshire, on the river Calder. The parish church is a Gothic structure: the spire is upwards of 237 feet in height. There is a handsome stone bridge over the Calder, built in the reign of Edward III, in the centre of which is a chapel, in the richest style of Gothic or Saracenic architecture, ten yards in length, and about eight in breadth. Wakefield is one of the greatest corn markets in England, and contains immense corn warehouses. Population, 12,232; nine miles south of Leeds. By the reform act of 1832, Wakefield is constituted a borough, returning one member to parliament.

Wakefield, Gilbert, a distinguished scholar and critic, son of the reverend George Wakefield of Nottingham, was born in 1756, and entered, in 1772, Jesus college, in Cambridge, where he pursued his studies with great ardor, in 1776 graduated bachelor of arts, and was soon after elected a fellow. In the same year, he gave the public a small volume of Latin poems, with a few critical notes upon Homer. In 1778, he received deacon's orders, and, on leaving college, engaged in a curacy at Stockport, in Cheshire, and subsequently at another near Liverpool. The dissatisfaction which he entertained at the doctrines and liturgy of the church of England progressively increasing, he determined to take the first opportunity of resigning his situation in it; which design he fulfilled in 1779, and accepted the office of classical tutor at the dissenting academy at Warrington. He had early formed a design of giving a new version of the New Testament, and published, in 1782, his New Translation of the Gospel of St. Matthew, with Notes Critical, Philological and Explanatory (4to.). On the dissolution of the Warrington academy, he removed to Bramcote, in Nottinghamshire, with a view of taking private pupils. Here he published, in 1784, the first volume of an Enquiry into the Opinions of the Christian Writers of the First Three Centuries concerning the Person of Jesus Christ, a work which he never concluded. He subsequently removed to Richmond and Nottingham, until, in 1789, he commenced his *Silva Critica*, the object of which was to illustrate the Scriptures by the philology of Greece and Rome. Of this learned performance, five parts appeared in succession, until 1795, the three first from the Cambridge press. In 1790, he quitted Nottingham, in order to accept the office of classical tutor at the dissenting college at Hackney. Here his services were highly esteemed, until he advocated the superiority of private to public worship, and wrote a book in support of his opinions, which tended to dissolve the connexion. In 1792, he gave the world his Translation of the New Testament, with Notes Critical and Explanatory (in 3 vols., 8vo.) and, in 1795, published Memoirs of his Own Life (2d ed., 1804, 2 vols., 8vo.), a characteristic performance. He next defended revealed religion by his Evidence of Christianity, in answer to Paine's Age of Reason, and planned a new edition of Pope's Works, in which he was anticipated by doctor Warton. He, however, proceeded so far as to publish a first volume, and a volume of Notes on Pope; as also an edition of his versions of the Iliad and Odyssey. He followed up this labor with editions of Select Greek Tragedies; of Horace; of Bion and Moschus; of Virgil; and, finally, of Lucretius (in 3 vols., 4to.), a work which has ranked him among the most erudite and industrious of critical editors. He soon after entered the path of politics, and censured the policy of the war against France, produced by the French revolution, in a pamphlet written in 1798, entitled a Reply to the Bishop of Llandaff's Address to the People of Great Britain; for which he was subjected to a crown prosecution for libel, which terminated in a trial and conviction in February, 1799, when he was sentenced to two years' imprisonment in Dorchester gaol. He endured the whole of this sentence, which was, however, alleviated by a subscription amounting to £5000, that took away his anxiety for the future support of his family. On his restoration to liberty, he opened a course of lectures upon Virgil, in the metropolis, but, in August of the same year, was seized with a typhus fever, which terminated his life, Sept. 9, 1801, in the forty-sixth year of his age. Mr. Wakefield was a zealous and industrious scholar, who followed what he deemed truth, without regard to consequences, wherever it might lead him: hence his abandonment of the church, and of public worship, and formation of a system of divinity of his own; for he never formally joined any body of dissenters. His classical emendations occasionally exhibit strange singularities of taste and opinion; and, in conjectural criticism, indeed, he evinced much of the bold character of Bentley and Markland. His private character was amiable and estimable, and far removed from the asperity of his controversy and his criticism. Besides the works already mentioned, and a few more of minor importance, a Collection of Letters, in a correspondence between him and the right honorable C. J. Fox, has been published since his death, chiefly relative to topics of Greek literature.

Wakefield, Mrs. Priscilla; well known for the ingenious works which she has written for the instruction of youth, and as the original promoter of banks for the savings of the poor, which are now become so general. She has published Juvenile Improvement (1795); Leisure Hours (2 vols., 1796); an Introduction to Botany, in a series of letters (1796); Mental Improvement (3 vols., 1797); Reflections on the present Condition of the Female Sex, with Hints for its Improvement (1798); the Juvenile Traveller (1801); a Familiar Tour through the British Empire (1804); Domestic Recreation (1805); Excursions in North America (1806); Sketches of Human Manners (1807); Variety (1809); Perambulations in London, &c. (1810); Instinct Displayed (1811); the Traveller in Africa (1814); an Introduction to the Knowledge of Insects (1815); and the Traveller in Asia (1817).

Walachia, or **Wallachia**; a province under the protection of the Porte, lying on the northern bank of the Danube, with Moldavia and Transylvania on the north, and Servia on the west. Its area is equal to about 25,000 square miles, with a population of 950,000 souls. The capital is Bucharest. The other principal towns are Brailow, the key of the Danube, Tergovista, and Giorgiev. The face of the country is considerably diversified: in the north it is mountainous; the central and southern parts are less uneven, consisting chiefly of fertile valleys and extensive plains. Few countries are more indebted to nature; but the bad government and insecurity of property have left it nearly a waste. Corn, tobacco, flax, horses, sheep and salt abound; but the rich soil is little cultivated, and the mineral treasures of the country are undisturbed. The inhabitants are chiefly Walachians and gypsies. The former, the original inhabitants, are a mixture of different nations—Dacians, Bulgarians, Sclavonians, Goths and Romans. They call themselves Romans, and speak a corrupt Latin. Their summer dress also resembles that of their ancestors in the period of the Roman empire, as appears by the figures on Trajan's column, in Rome. They are rude, ignorant and stupid. The gypsies, who are very numerous, resemble those found in other countries. The mountaineers, who have the right to bear arms, are called, in Moldavia and Walachia, *Pandoors* (a Moldavian word, signifying *frontier guards.*) The religion of the inhabitants is Greek, and the upper classes speak the Greek language, and in general have the manners of the Greeks. Walachia is under the protection of the Porte, which has the right of naming its hospodar or prince. The hospodars were formerly appointed for seven years, during which time they could not lawfully be removed; but pretences enough were always found for suspecting them, and they were rarely suffered to die a natural death. By the treaty of Adrianople, in 1829, it was stipulated that the office should be held for life; that the inhabitants should enjoy the free exercise of their religion, freedom of trade, and a separate administration; that no Mohammedan should be allowed to reside in Walachia, and that the yearly tribute to the Porte should be fixed at a certain sum, beyond which that power should claim no further contributions. In the time of the Romans, Walachia formed a part of Dacia. In the twelfth and thirteenth centuries, it was governed by princes dependent on the Byzantine court, and, in 1421, was rendered tributary to the Turks. It still, however, retained its own princes, and a separate administration, the Turks occupying only the three fortresses of Brailow or Ibrail, Giorgiev and Thurnul. Still it was often plundered by the Turks, and subjected to forced contributions; and the hospodars made the best use of their precarious authority to pillage the people. In 1716, Mavrocordatus was appointed hospodar. He was the first Greek who had received this post, and, with his successors, who were also Greeks, did much towards civilizing and improving the condition of the country. The insurrection of 1821 (see *Hetaireia*, and *Greece, Revolution of*) was quelled, and only rendered the state of the province more deplorable, until the war of 1828, when it was occupied by the Russians, and delivered from the iron yoke of Turkish despotism.

Walcheren, or **Walchern**; an island of the Netherlands, the most important and the most westerly of the Zealand islands, about thirteen miles from north to south, and eight from east to west, situated in the German sea, at the mouth of the Scheldt. It lies low, protected from inundation by strong dikes; is well cultivated, but not healthy. It contains three towns, Middleburg, the chief place, with 13,200 inhabitants; Flushing, a fortress; and Veere; and numerous villages. Middleburg is the capital. Lon. 3° 29′ E.; lat. 51° 34′ N. The English attempted to land there in 1809. (See *Napoleon*, and *Otranto*.)

Walckenaer, Charles Athanasius, baron of, member of the royal French academy of inscriptions and belles-lettres, was born at Paris, in 1771, and, after having studied there, made a tour, at the period of the revolution, in the Netherlands and Great Britain, and prosecuted his studies for some time at Glasgow. Being in independent circumstances, he lived, after his return to France, on his estate, eight leagues from Paris, devoted to scientific pursuits. In October, 1813, he was chosen a member of the imperial institute, of the class of history and ancient literature. Louis XVIII conferred upon him the cross of the legion of honor in 1814, and, by the ordinance of March 21, 1816, reorganizing the institute, named him member of the academy of inscriptions. In 1823, he received the place of *maître des requêtes*, with the title of baron. Walckenaer has acquired reputation as an author in several departments of literature and science. Among his works are to be remarked the *Faune Parisienne*, on the plan of Fabricius (2 vols., 1802); *Géographie Moderne*, a *rifacimento* and translation of Pinkerton (6 vols., 1804); *Histoire naturelle des Aranéides*; *Recherches Géographiques sur l'Intérieur de l'Afrique Septentrionale*; *Notice sur la Vie et les Ouvrages de Don F. Azara*; *Histoire de la Vie et des Ouvrages de Lafontaine* (2 vols.); and numerous other geographical, archæological and scientific treatises in different publications. He has likewise been a contributor to the *Biographie Universelle* (Paris, 1811—1828, 53 vols.), and the *Dictionnaire Géographique Universel*, now publishing at Paris (ninth vol., 1832).

Waldeck; a sovereign principality of Germany, bordering to the south and east on Hesse-Cassel, and to the west and north on the Prussian province of Westphalia. It has a superficial area of 455 square miles, with 56,000 inhabitants. The soil is mostly stony, but yields grain in abundance, and affords good pasturage. The religion of the inhabitants, who are industrious, but poor, is Lutheran. The county of Pyrmont (q. v.) belongs to Waldeck, though territorially separated from it. The Waldeck estates are composed of certain landed proprietors, deputies from the thirteen towns of the principality, and ten deputies of the peasants. Waldeck, as a member of the German confederation, has one vote in the general assembly (*plenum*), and, in conjunction with the Hohenzollern, Lippe, Reuss, and Lichtenstein houses, the sixteenth vote in the diet. (See *Germany*.) The chief town is Corbach, with 2200 inhabitants. The residence of the prince is Arolsen, 1750 inhabitants. The revenue of this petty principality is about $200,000; public debt about $600,000; quota of troops to the army of the confederacy, 518 men. The house is one of the most ancient in Germany. Waldeck was one of the *shambles*, as Chatham appropriately called them, to which the British government had recourse for purchasing troops in the American war.

Waldenses. This Christian sect, celebrated as the precursor of the reformation, appears, from old manuscripts in the university of Cambridge, to have existed as early as 1100. According to the common opinion, it owes its origin and name to Peter Waldus (Waldo, Vaud), a rich citizen of Lyons, although some of their writers derive the appellation *Waldenses* from *vallé* (valley), and call them *Vaudois*, or dwellers in the valleys. About 1170, Waldo, from reading the Bible and some passages from the fathers of the church, which he caused to be translated into his native tongue, came to the determination to imitate the mode of life of the apostles and primitive Christians, gave his goods to the poor, and by his preaching collected numerous followers, chiefly from the class of artisans, who, from the place of their birth, were called *Lyonists; or Poor Men of Lyons*, on account of their voluntary poverty; *Sabatati*, or *Insabatati*, on account of their wooden shoes or sandals (*sabots*); *Humiliatists*, on account of their humility; and were often confounded with the Cathari, Patarenes, Albigenses, and other heretics, whose fate they shared. In their contempt of the degenerate clergy and their opposition to the Roman priesthood, the Waldenses resembled other sects of the middle ages; but, going beyond the design of their founder, which was merely to improve the morals of men, and preach the Word of God freely to every one in his native language, they made the Bible alone the rule of their faith, and, rejecting whatever was not founded on it, and conformable to apostolical antiquity, they gave the first impluse to a reform of the whole Christian church, renounced entirely the doctrines, usages and traditions of the Roman church, and formed a separate religious society. They were therefore excommunicated as heretics, at the council of Verona, in 1184; but they did not suffer a general persecution until the war against the Albigenses (q. v.), after they had spread and established themselves in the south of France, under the protection of the counts of Toulouse and Foix. At that time (1209—1230), many Waldenses fled to Arragon, Savoy and Piedmont. Spain would not tolerate them. In Languedoc they were able to maintain themselves till 1330; in Provence, under severe oppression, till 1545, when the parliament at Aix caused them to be exterminated in the most cruel manner; still longer in Dauphiny; and not till the war of the Cevennes were the last Waldenses expelled from France. In the middle of the fourteenth century, single congregations of this sect went to Calabria and Apulia, where they were soon suppressed; others to Bohemia, where they were called *Grubenheimer*, because they used to conceal themselves in caverns. These soon became amalgamated with the Hussites; and from them the Bohemian Brethren derive the apostolical consecration of their bishops. On the other hand, they found a retreat, fortified by nature, in the valleys of western Piedmont, where they founded a distinct church, which has remained, till the present day, the main seat of their sect. Their doctrines rest solely on the gospel, which, with some catechisms, they have in their old dialect, consisting of a mixture of French and Italian. In this language their simple worship was performed, till their old *Barbes* (uncles, teachers) became extinct, in 1603. They then received preachers from France, and since that time their preaching has been in French. These teachers, however, form no distinct priesthood, and are supplied from the academies of the Calvinistic churches. Their rites are limited to baptism and the supper, respecting which they entertain the notions of Calvin. The constitution of their congregations, which are chiefly employed in the cultivation of vineyards, and in the breeding of cattle, and which are connected by yearly synods, is republican. Each congregation is superintended by a consistory composed of elders and deacons, under the presidency of the pastor, which maintains the strictest moral discipline, and adjusts small differences. From the time of their origin, the Waldenses have been distinguished from their Catholic neighbors by their pure morals and their industry, and have been esteemed as the best subjects. After they had entered into a religious communion with the Calvinists, in the sixteenth century, they were also exposed to the storm which was intended to sweep away the reformation, the doctrines of which they had already cherished for upwards of three centuries. This was the cause of their extirpation in France, and their chequered fate in Piedmont. Those who had settled in the marquisate of Saluzzo were totally exterminated by 1733; and those in the other valleys, having received from the court of Turin, in 1654, new assurances of religious freedom, were treacherously attacked in 1655, by monks and soldiers, treated with brutal cruelty, and many shamefully murdered. The rest of their male population took up arms; and their bravery, aided by the mediation of the Protestant powers, finally procured them a new, though more limited ratification of their freedom by the treaty concluded at Pignerol, August 18, 1655. New oppressions, in 1664, gave rise to a new contest and treaty. The persecution exercised in 1685, through French influence, obliged thousands to emigrate into Protestant countries. In London, they united with the French Huguenots; in the Netherlands, with the Walloons; in Berlin, with the French congregations: nearly 2000 went to Switzerland. Some of these returned by force to Piedmont, in 1689, and, with those who had remained, maintained themselves, under many oppressions, to which limits were finally put, in 1725, in consequence of Prussian mediation. They now enjoy religious freedom and civil rights in their old valleys of Lucerne, Perusa, and St. Martin, in western Piedmont, where they have thirteen parishes, containing about 20,000 souls. Their church service is under the direction of a synod. After long negotiations, in the way of which great difficulties were thrown by the religious zeal of the Tübingen theologians, several hundred of the abovementioned fugitives settled in Würtemberg, in 1699, where their descendants have ten parishes, and are 1600 in number. They are next to the Calvinists in the simplicity of their worship, and in their ecclesiastical constitution, but in intellectual cultivation, they are behind the other Protestants. In later times, England and Prussia have afforded aid to the Waldenses. By contributions which they collected from all Europe, in 1824, they erected an hospital. The latest accounts of them were collected on the spot, in 1823, by W. St. Gilly, an English clergyman—Narrative of an Excursion to the Mountains of Piedmont, and Researches among the Vaudois, Protestant Inhabitants of the Cottian Alps, &c. (second edition, London, 1825, 4to.). Also see Hugh Dyke Akland's *Sketch of the History and present Situation of the Waldenses in Piedmont* (London, 1826), and the same author's *History of the glorious Return of the Vaudois to their Valley, in* 1689 (from the original accounts of their pastor, H. Arnaud), *with a Compendium of the History of that People*, &c. (London, 1827, 1 vol.).

Waldis, Burkard. (See *Burkard Waldis*.)

Waldstædte (i. e. the *Forest Towns*), or Vierwaldstædte (i. e. the *Four Forest Towns*); a name given, in Switzerland, to the cantons of Lucerne, Uri, Schweitz, and Unterwalden, probably on account of the number of forests found in them. (See the articles.)

Waldstædtersee. (See *Vierwaldstädtersee*.)

Waldstein-Wartemberg; a Bohemian family, known since the thirteenth century, and from which sprung the famous Wallenstein. (q. v.) There are at present two lines, with large possessions, in Bohemia and Moravia, containing 90,000 inhabitants. The late Francis Adam, count of Wallenstein, after having served in several wars, travelled for seven years in Hungary, to study the plants of the country, and published, in 1812, *Descriptiones et Icones Plantarum rariorum Hungariæ* (Vienna, folio), which procured him the membership of several learned societies. Wildenow (q. v.) called a plant, after him, *Waldstenia*, in his *Species Plantarum Linnæi*. He died in 1823.

Wales; a principality in the west of Great Britain, washed on the north and west by the Irish sea, and on the south and south-east by the Bristol channel. It is from 130 to 180 miles in length from north to south, and from 50 to 80 in breadth, comprising an area of 8125 square miles. The population, in 1811, was 611,788; in 1821, 717,438; in 1831, 805,236. It is divided into North and South Wales, containing twelve counties, Anglesey, Caernarvon, Denbigh, Flint, Merioneth and Montgomery in the former, and Brecknock, Cardigan, Caermarthen, Glamorgan, Pembroke and Radnor in the latter division. The general aspect of Wales is mountainous, affording numerous views of wild scenery, interspersed with delightful valleys. The loftiest summits in North Wales are Snowdon (3579 feet), Plinlimmon, and Cader Idris. Numerous small lakes are scattered among the mountains; and there are several navigable rivers, such as the Severn, the Coye, the Conway, the Towy, and the Dee. The climate is colder than in England, and humid; but the air is, in general, salubrious, and the country healthy. The Cambrian goat is found here in a wild state; and goat-hunting is a favorite diversion of the people. The mineral kingdom is rich in silver, copper, lead, iron and coal. The agriculture of Wales is, in general, much behind that of England, though, of late years, the implements of farming, and the management of the land, have been much improved. The roads have also been, until recently, in a bad state. The Ellesmere, Montgomery, Brecknock, Cardiff, and other canals, facilitate the internal intercourse. (See *Canals*.) The woollen manufactures are extensive; the commerce inconsiderable. The common Welsh still retain many peculiar superstitions and customs, and, in many parts, their peculiar language. The gentry, however, are, at present, educated in England; and the influence of their example is gradually exterminating the old Welsh peculiarities. Many remains of the ancient literature are yet extant, and societies have been formed for preserving such relicts. (See *Bard*.) The Welsh are descendants of the ancient Britons, who, being driven out of England by the Anglo-Saxons, took refuge in these fastnesses, or fled to the continent of Europe, where they gave their name to Brittany. (See *Gael*.) The Welsh language is Celtic. (See Roberts's *Cambrian popular Antiquities* (London, 1815), and *Collectanea Cambrica*. Wales formerly sent twenty-four members to parliament, one for each county, and one for each of twelve boroughs. By the reform act of 1832, the number is increased to twenty-nine, two from each of the counties of Caermarthen, Denbigh and Glamorgan, one from each of the other nine, and fourteen from as many boroughs, of which Merthyr Tydvil and Swansea are the two created by the act. It belongs to the province of York in ecclesiastical matters, and has four bishoprics, St. David's, Bangor, Llandaff, and St. Asaph. Wales was long an independent and separate sovereignty from England. Its dimensions have been contracted by taking from it the whole county of Monmouth, and a part of several of the adjacent English counties. It was originally peopled by the British Ordovices and Silures, and was anciently called *Cambria*. In the ninth century, it was divided into three sovereignties, called *North Wales*, *South Wales*, and *Powis Land*. In the thirteenth century, it was subdued by Edward I, its last prince Llewellyn ap Gryffyth having fallen in battle in 1285. Since that time, it has been annexed to the English crown, and gives his title to the eldest son of the king of England. It was not completely united with England until the reign of Henry VIII, when the government and laws were formed agreeably to those of England. (For the judicial administration, see *Assizes*.)

Wales, New; a name given to a part of North America, situated south-east and south-west of Hudson's bay, and divided into North and South: the former name is lost in the more general term of *Labrador*. New South Wales is situated north-west of Canada, and extends along the south borders of Hudson's bay, 450 miles, from lon. 85° to 90° W., lat. 54° to 58° N.

Wales, New South. (See *New South Wales*.)

Wales, Prince of; the title of the heir apparent of the British throne, first conferred by Edward I on his son (afterwards Edward II), at the time of his conquest of that principality. (See *Edward I*.) The heir apparent is made prince of Wales and earl of Chester by special creation and investiture, but, as the king's eldest son, is, by inheritance, duke of Cornwall, without any new creation. To compass or conspire the death of the prince of Wales is as much high treason as to conspire the death of the king. The eldest daughter of the king is styled the *princess royal*, unless there are no sons, when she is created princess of Wales. The arms of the prince of Wales are the royal arms, with the addition of the motto *Ich dien* (I serve), said to have been adopted by the Black Prince, from a prince of Bohemia, whom he slew at Cressy. Another account says Edward I presented his infant son to the Welsh, who had agreed to accept a native prince from him, with the words *Eich dyn* (This is your man).

Walker, John, a philological writer, born in 1732, joined with a Mr. Usher, about the year 1767, in setting up a school at Kensington; but the speculation not succeeding to his wishes, he settled in London, where he gave lectures on elocution, having, it is said, in the earlier part of his life, studied the art with a view to making the stage his profession, although his ill success on the boards had induced him to adopt another calling. Mr. Walker died in 1807. He is known as the author of several useful elementary works, such as a Rhetorical Grammar (8vo.); a Pronouncing Dictionary (8vo.); Elements of Elocution; Key to the correct Pronunciation of Greek, Latin and Scriptural Names (8vo.); and a Rhyming Dictionary.

Walkyrias, or **Valkyrias**. (See *Northern Mythology*.)

Wall. (See *Architecture*, vol. i, p. 334.)

Wall-Flower (*cheiranthus cheiri*); a cruciferous plant, which grows in the clefts of rocks and old walls, in most parts of Europe. The stem is naked, hard, and almost woody at the base, dividing above into leafy branches. The flowers are large, of a fine golden-yellow in the wild plant, and agreeably scented. In the cultivated plant, the flowers are of various and brilliant colors, and attain a much larger size. Double and semi-double varieties are common in gardens. It is a beautiful and favorite ornamental plant. Being an acrid and hardy evergreen, it is sometimes sown in pastures, together with parsley, thyme, &c., as a preventive of the rot in sheep. About thirty species of *cheiranthus* are known, almost exclusively confined to the eastern continent, several of which have been long cultivated in gardens.

Wallace, sir William; a celebrated Scottish patriot and warrior, who was the son of a small landholder of an ancient family in the west of Scotland. Possessing great strength of body and undaunted courage, as well as a warm attachment to his native country, he beheld its subjugation by the English king, Edward I (q. v.), with the utmost impatience, and resolved to undertake the task of liberating Scotland from a foreign yoke. Having collected a small band of followers, he commenced an irregular warfare with the English troops left to secure the conquests of Edward; and his enterprising spirit and local knowledge soon rendered him a formidable foe. In 1297, he planned an attack on the English justiciary at Scone; but that officer and his colleagues eluded the danger by flight. Many of the barons, encouraged by this success, joined the standard of Wallace, or secretly favored his designs. Earl Warenne, the governor of Scotland, under king Edward, assembled an army of 40,000 men, with which he marched against the Scottish champion, who retreated to Cambuskenneth, on the banks of the Forth, where the English were defeated with great slaughter; and their commander fled, with the remains of his army, into England Wallace was now declared regent of Scotland, under the captive king, John Baliol. The English monarch, alarmed at the reverses which his partisans had experienced, hastened from Flanders to oppose Wallace, against whom he led an army of 90,000 men. Jealousy at his elevation had already thinned the ranks of the Scottish hero, who, having resigned the regency, retained his command only over his particular followers. The Scottish army, under the steward of the kingdom, and Comyn, of Badenoch, waited the approach of Edward at Falkirk (q. v), where an engagement took place in the summer of 1298, in which the English were completely victorious. Wallace retired to the mountains, resumed his system of predatory warfare, and maintained his independence at the head of those who still continued attached to him. King Edward at length obtained possession of the person of his formidable adversary, through the treachery of sir John Monteith; and the deliverer of his country, being conveyed to London, suffered the death of a traitor, Aug. 23, 1305. His memory is still highly revered in Scotland, and his deeds have been the frequent theme of the poet and the historian.

Wallachia. (See *Walachia*.)

Wallenstein, Albert, count of (properly *Waldstein*); duke of Friedland, generalissimo of the Austrian army in the thirty years' war, a man whose name excites mingled emotions of admiration and abhorrence; for, though his achievements were great, he knew no motive but ambition, and scrupled at no means of gratifying it. He was the terror of his contemporaries, and, in the short period of 1625—'34, exercised a powerful influence on events, and has therefore met with many historians. But the veil which hangs over the last scene of his life has not been wholly removed by any of them.—Albert of Waldstein, born at Prague, in 1583, was descended from a distinguished Bohemian family, which was attached to the Protestant religion. For the instructions which he received under the paternal roof, and in the celebrated Protestant school at Goldberg, in Silesia, he had no taste. His restless, impetuous disposition was hostile to discipline, and, in all mischievous exploits, he was the leader of his fellow scholars, over whom he exercised a certain supremacy. He behaved in like manner at the university of Altorf, which he entered in 1594, and where the commission of an offence brought him into the academic prison. Albert afterwards entered, as a page, into the service of the margrave Charles of Burgau, a prince of the Austrian-Tyrolese collateral line, who resided at Inspruck. He became a convert to the Catholic religion, and received from the margrave the means of travelling in Germany, England, France and Italy. During his travels, military and financial systems, statesmen and generals, were the only objects of his attention. He then studied, for a time, mathematics and politics, but especially astrology, at the celebrated university of Padua. Argoli, his teacher in the latter science, seems to have given rise to his later projects, by predicting a splendid fortune to him. In 1606, Wallenstein performed a campaign against the Turks, in Hungary, with the imperial army, in which he manifested much bravery, and became captain. The peace (Nov. 11, 1606) terminated this campaign, and he returned to Bohemia without an appointment. Here he married a very rich but aged widow, who, after a short, childless marriage, left him a great property, which enabled him to play a splendid part at the court of the emperor Matthias, at Vienna. In an insignificant war, which broke out in Friuli in 1617, between the archduke Ferdinand of Stiria and the republic of Venice, he raised, at his own expense, a body of 200 cavalry, and led them to the assistance of the archduke (afterwards the emperor Ferdinand II), by which means he acquired a high place in his favor. His courage and conduct were distinguished at the relief of Gradisca; and he gained the attachment of officers and soldiers by his extraordinary generosity, and his attention to their wants. After the end of the war, Ferdinand appointed him colonel of the militia at Olmütz, in Moravia. He there took for his second wife Isabella, daughter of count Harrach, a favorite of Ferdinand, and was raised by Ferdinand to the rank of count. On the breaking out of the troubles in Bohemia, Wallenstein joined, in 1619, the Austrian party against the Protestant Bohemians. He was compelled to leave Olmütz, but succeeded in conveying the public treasure to Vienna. He had retained of it 9000 dollars. With this and his own money he raised 1000 cuirassiers, whom he led to Bohemia, to succor the Austrian general. Here he distinguished himself in several engagements, and afterwards went, with the Austrian army, under Boucquoi, to Moravia, the fortified places of which soon opened their gates to the conquerors. Wallenstein was now appointed military governor of Moravia, recovered his estates, which had been confiscated by the Protestant Bohemians, and, having been created major-general, after the fall of Boucquoi, commanded with success against Bethlem Gabor, prince of Transylvania. In 1622, the emperor invested him with the lordship of Friedland, in Bohemia, and, in 1623, created him prince of Friedland. When the war commenced in the north of Germany, where the king of Denmark came forward, in 1625, at the head of the Lower Saxon circle, against the league, the emperor found himself in great embarrassment, from want of money and troops. Wallenstein offered to raise an army of 50,000 men at his own expense, and without the least contribution on the part of the emperor, on condition that he should be its commander-in-chief, and should be allowed to retain the contributions obtained from the conquered countries. It was not uncommon, in those times, for a general to levy a body of troops at his own expense, and then indemnify himself from friend and foe; but the scheme of raising so numerous an army appeared rash. The emperor had no alternative: he therefore accepted his proposition on those terms, and, soon after, gave him the title of duke. The reputation of Wallenstein, and the active cooperation of many devoted officers, soon enabled him to collect an army of 25,000 men under his banners, at Eger. He immediately marched with it (in 1625) to Franconia, where the country was compelled to support them for some time, then through Suabia and the circle of the Upper Rhine, to Lower Saxony, where he passed the winter in Halberstadt, and even occupied a part of Upper Saxony. Every where the inhabitants were compelled to afford subsistence to his troops, the number of which continued to increase. The celebrated count Mansfeld opposed him with a far inferior army, but was totally defeated by Wallenstein, April 18, 1626. He, nevertheless, assembled new troops, with which he proceeded through Silesia, towards Hungary, in order to join Bethlem Gabor. Wallenstein followed him rapidly. Gabor concluded a truce, and Mansfeld withdrew to Dalmatia, where he died. Wallenstein now relieved Novigrad, which was besieged by the Turks, and conquered Waitzen. After Gabor had made peace with the emperor, Wallenstein returned (in 1627) from Hungary, through Silesia, Lusatia and Brandenburg (Aug., 1627), to Lower Saxony, where he obliged the king of Denmark (who could not withstand, at the same time, him, and the army of the league, under Tilly) to make a speedy retreat; conquered, in a short time, the duchy of Mecklenburg, and Holstein as far as Glückstadt, as well as the greater part of Silesia and Jütland, no one being prepared for so unexpected an attack. All these countries were very severely treated, and heavy contributions were exacted of them. As Wallenstein, from want of vessels, could not invade the Danish islands, he went into winter-quarters on the coasts of the Baltic, occupied Pomerania, and extended his line of troops to Berlin. The fortress of Stralsund alone withstood him. By the edict of June 9, 1629, the emperor threatened the two dukes of Mecklenburg with the ban, for having espoused the Danish party, and, on June 16, 1629, invested Wallenstein with their territories, and with the principality of Sagan, in Silesia: he also appointed him admiral of the Baltic. The object seemed to be, to make the emperor master of the coasts of the Baltic, and to destroy, in this sea, the trade of the Dutch, who were at variance with Spain. But the Hanseatic towns refused Wallenstein's demand for vessels, and he had not enough to execute his bold plan. He was also unsuccessful in his attempt on Stralsund, which was aided by Denmark and Sweden, and which he besieged from May till July, 1628. During this siege, he lost, in various assaults, more than 12,000 men. He was also obliged to withdraw his troops from before Glückstadt and Magdeburg. He again undertook, in September, the siege of Stralsund. "The city should be his," he said, "were it fastened by chains to heaven." But in vain. He was obliged a second time to raise the siege. He next took Rostock, and defeated the Danes at Wolgast. His further progress was obstructed by the peace between the emperor and Denmark, at Lübeck, in 1629, which he had himself promoted, because he expected to obtain by it the quiet possession of Mecklenburg. But having ignominiously dismissed the Swedish ambassadors from the congress of Lübeck, and having likewise sent his confidential friend Arnheim, with 12,000 men, to aid king Sigismund of Poland, against Gustavus Adolphus, he gave occasion to a new war with Sweden. The fear of the emperor's designs, as well as the overbearing conduct of Wallenstein, and the immense extortions which he and his troops practised, even in neutral countries (having, within seven years, raised 600,000,000 thalers—more than 400,000,000 dollars—by contributions in the north of Germany), induced the German princes, at the diet of Ratisbon, in 1630, to wrest from the emperor a promise to diminish his army to 30,000 men, and deprive Wallenstein of its chief command. In order to promote the election of his son as king of the Romans, Ferdinand II was induced to disgrace, in a mortifying manner, a general who had saved Austria, and raised it to the summit of power. With the command of the army, Wallenstein was at the same time obliged to resign the duchy of Mecklenburg. He seemed, however, to bear with indifference this degradation, and lived, from that time, in Prague, as a private man, but with the pomp of royalty. He was surrounded with guards: sixty pages and twenty chamberlains waited on him. He travelled to his estates with a train of 200 carriages; and Battista Seni, his astrologer, announced to him a new career, yet more splendid. This career was opened to him after Tilly's (q. v.) death. The military successes of Gustavus Adolphus in Germany forced the emperor to the humiliating step of conferring again on Wallenstein the command of the army. After some hesitation, he accepted the offer, but on terms very derogatory to the emperor. He received absolute power, almost independent of the emperor, not only over the army, but also to treat, confiscate, punish, and reward, at will, in the countries of the empire. He stipulated for an indemnification for Mecklenburg, and also for the grant of an imperial hereditary province. In an incredibly short time, he assembled an army of 40,000 men, at Znaym. After having expelled the Saxons from Bohemia, who had taken Prague and other cities, he formed a junction with the troops of the elector of Bavaria, and marched to Franconia, against Nuremberg. But Gustavus had already hastened to the aid of the Protestants; and Wallenstein, though his troops were superior in number to those of the king by one half, avoided a battle. Both parties intrenched themselves. Gustavus waited for his approaching reinforcements; Wallenstein undertook no attack; and nothing but insignificant skirmishes occurred. As Wallenstein could not be made to risk a battle, Gustavus Adolphus attempted to storm the Austrian camp (Aug. 24, 1632); but his assaults were repeatedly repelled. The Swedish army now turned towards the north of Suabia, and made new conquests, while Wallenstein suddenly invaded the unoccupied Saxony, to compel the elector to secede from his alliance with Sweden. Gustavus Adolphus followed him thither, and, November 6, the battle of Lützen (q. v.) took place. Wallenstein was compelled to retire with great loss. He himself was wounded, Pappenheim was killed, and all his artillery was taken. The Swedes, although their great king had fallen, maintained the field under Bernard, duke of Weimar. Wallenstein now withdrew to Bohemia, and caused a strict court-martial to be held, at Prague, over the officers and soldiers, who were accused of not having done their duty in the battle; and many of them were executed. In May, 1633, he again took the field, and proceeded to Silesia, where there was a Swedish army, combined with Saxon and Brandenburg troops. Notwithstanding his numerical superiority, he undertook, at first, nothing important. This inactivity gave rise to the suspicion, that he was engaged in secret negotiations with the enemy, to the disadvantage of Austria. He was even charged with the design of making himself king of Bohemia, by the aid of the Protestants. That negotiations were carried on between the parties, was no secret; but that these related to the conclusion of a peace, and not to Wallenstein's private advantage, is the conclusion to be drawn, at least from the documents that have been made public (e. g. from the Von Arnim archives*). What has been published in justification of the subsequent steps of the emperor against Wallenstein should not be unconditionally received. After a truce of seven weeks, without result, Wallenstein, during the rest of this campaign, did nothing but surprise and capture a body of Swedes (Oct. 18, 1633), occupy several Silesian towns, and make an incursion into Lusatia and Brandenburg, as far as Berlin. Count Thurn, the instigator of the first insurrection of the Bohemians, he set at liberty, loaded with gifts, and charged with secret commissions to the Swedish chancellor, which proceeding excited great indignation in Vienna. But the duke cared not for the favor of a court whose ingratitude he had experienced, and which he contemned. Meanwhile he performed nothing decisive. Still less success followed the expedition which he made, at the request of the emperor, through Bohemia, into the Upper Palatinate, to prevent the further progress of Bernard of Weimar in Bavaria. Without risking a battle, Wallenstein, on the approach of the duke, retired to Bohemia, where he took up his winter-quarters. This measure, which was entirely against the will of the emperor, who wished to spare, as much as possible, his hereditary provinces, increased the suspicions of Wallenstein's fidelity. His enemies at court, especially the Spanish party, accused him of treason. The plan of a conspiracy, ascribed to him, was laid before the emperor, the object of which was said to be, to make himself independent sovereign of Bohemia, by means of his devoted troops, and to maintain possession of this country by the aid of the Swedes and some Protestant German princes. Wallenstein having at last submitted to a council of war assembled at Pilsen, on Jan. 11, 1634, all his complaints against the emperor, and having gained over part of the generals to his purposes, the court of Vienna, which had received information of the whole affair from Octavio Piccolomini, began to realize the urgency of the danger. Ferdinand II therefore issued an order (Feb. 18, 1634), depriving Wallenstein of the command of the army, and pronouncing sentence of outlawry against him and two of his generals, Illo and Trczka (pronounced *Tertschka*), as traitors and rebels. The generals, whose fidelity could be relied on, were commanded to seize Wallenstein, dead or alive. He therefore proceeded to Eger, in order, it was supposed, to be nearer the frontiers and the Swedish troops. Nothing, indeed, seemed to remain for him but to seize on some fortified place, like Eger, and unite himself with the enemy. His assassination, however, put a sudden end to his projects; and, in all probability, Germany was thereby preserved from a great catastrophe. Some officers of the garrison at Eger (colonel Leslie, an Irish Catholic, to whom Wallenstein had confided every thing; Butler, the commander of the fortress, and lieutenant-colonel Gordon, both Scotch Protestants), as every moment of delay seemed to increase the danger, conspired for Wallenstein's destruction. On Feb. 25, 1634, at an entertainment given by the conspirators for this purpose, the most confidential friends of Wallenstein (Illo, Will, Kinsky, Trczka, and his aid, Neumann, captain of horse) were surprised and murdered by Butler's dragoons, led by major Geraldin. Deve reux, an Irishman, at the head of six halberdiers, was intrusted with the execution of the emperor's order on Wallenstein, who, surprised in his bed-chamber, received in silence, with outstretched arms, the thrusts of the halberds in his breast, and expired without a groan. He was not yet fifty-two years old. Not an arm was raised to avenge his death; and he was entombed, without pomp, in the Carthusian monastery, founded by himself, at Gitschin. He was mourned only by his widow. His cold, imperious temper had prevented him from gaining friends. The large sums of money found in his possession fell into the hands of the conspirators and their associates. All his papers were seized; but none have come to the public knowledge, that prove his treachery. His extensive possessions were confiscated by the Emperor, and given, in part, to those who had assisted in his destruction. Wallenstein was of a large, strong frame; his small, black eyes had a fire which all could not endure; his mien was always serious, cold and repulsive; his activity was extraordinary. Though his table was always richly filled, he was himself moderate, and resisted all the allurements of sense, seeking only the gratification of his ambition. He spent, however, a great deal in splendid buildings, and in a numerous and stately household. His own dress was generally marked by some singularity. He possessed much prudence, knowledge of mankind, and cunning, especially the art of fathoming the intentions of others and concealing his own. Towards those who were dependent on him, he was severe, and not unfrequently cruel. He was lavish to those whom he wished to gain over to his purposes, but possessed not the art of winning the heart. With personal courage, he united confidence in himself, and was not destitute of military talents, though he cannot be compared with the great tacticians who were opposed to him (Gustavus Adolphus and Bernard of Weimar). All his military undertakings were based on numerical superiority of troops; and his manner of waging war showed rather policy than military ability. He had no respect for religion, and was the professed enemy of the clergy, who, on their part, hated him in an equal degree. He was unable to rise above the prejudices of his age. His usual companion, who left him only a few moments before his death, was the Italian astrologer Seni, who, as was suspected, was bribed by the imperial court to mislead him. The dramatic pieces of Schiller, *Wallenstein's Lager*, *Die Piccolomini*, and *Wallenstein's Tod*, are among the finest productions of modern poetry. Some of the personages (Thekla and Max) are the mere creations of the poet's imagination. (See *Thirty Years' War*.)

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* There have been lately printed 200 unpublished letters of Wallenstein and others, of various dates, from 1627 to 1634.

Waller, sir William, a military officer, who distinguished himself in the civil wars between Charles I and the parliament, was born in 1597, and was a connexion of the poet. He studied at Oxford and Paris, and began his military career in the service of the confederate princes against the emperor, where he acquired the reputation of a good soldier. Upon his return home, he received the honor of knighthood, was elected a member of the long parliament for Andover, and, having suffered under the severity of the star chamber, acquired a predilection for the Presbyterian discipline. He soon became strenuous in his opposition to the court, and, when hostilities commenced, was appointed second in command of the parliamentary army, under the earl of Essex. The west of England was the principal theatre of his exploits, where he obtained several signal advantages, but ultimately sustained defeats by the king's forces at Roundway Down, near Devizes, and at Cropready bridge, in Oxfordshire. The blame was thrown by him on the jealousy of other officers; and soon after, having refused to fall in with the views of the Independents, he, among others, was removed by the self-denying ordinance. Being deemed a great support to the Presbyterian party, he was one of the eleven members impeached of high treason by the army, and finally expelled the house of commons, and committed to prison. He was again taken into custody, on suspicion of being engaged in sir George Booth's insurrection, but was released upon bail. He died at his seat in 1668. He published Divine Meditations, which were written during his retirement, and give a faithful picture of his sentiments and failings. He also left behind him a manuscript, published in 1793, under the title of Vindication of Sir William Waller, explanatory of his Conduct in taking up Arms against King Charles. Written by himself.

Waller, Edmund; an eminent English poet, born at Coleshill, in Warwickshire, in March, 1605. His father died during his infancy, leaving him an ample fortune. He was educated at Eton, whence he was removed to King's college, Cambridge. He was chosen member of parliament in his sixteenth or seventeenth year, and evinced himself a poet almost as soon as a politician, his verses On the Prince's Escape at St. Andero being written in his eighteenth year. What is more remarkable, they exhibit a style and versification as perfectly formed as those of his more mature productions. He continued to employ his muse on courtly topics, and augmented his fortune by a marriage with a rich city heiress. Being left a widower at the age of twenty-five, he became the suitor of lady Dorothea Sidney, eldest daughter of the earl of Leicester, whom he has immortalized under the poetical name of *Sacharissa*. He describes her as a haughty and scornful beauty; and, his addresses being unsuccessful, he acted as poetical, and other lovers, under such circumstances, frequently act, and married somebody else. In the parliament of 1640, he was again chosen to represent Agmondesham, and took a decided part with those who thought that a redress of grievances ought to precede a vote of supply. He also sat for the same borough in the long parliament, and joined Hampden, who was his uncle, in his opposition to ship-money. He continued to vote with the opposition, but did not fall in with all their measures, and absented himself from the house of commons on the commencement of open hostilities. He is also thought to have sent the king some pecuniary aid at Nottingham. He was one of the commissioners employed to treat with Charles at Oxford, who treated him with great kindness. His mind being then entirely disposed towards the royal party, he entered into a plot with his brother-in-law, named Tomkyns, clerk of the council to the queen, who possessed considerable influence, to produce a rising in the city. When arrested, there was little to convict them of the design; but Waller, according to lord Clarendon, to save himself, betrayed every body and every thing. The conclusion of this business, in which he displayed great baseness, was the execution of Tomkyns and Challoner, with his own expulsion from the house; after which he was tried and condemned; but on paying a fine of £10,000, he was allowed to leave the kingdom. He retired first to Rouen, and subsequently to Paris, where he lived on his wife's jewels, until, after a lapse of ten years, perceiving himself getting to the end of his resources, he applied for permission to return to England, which, by the interest of colonel Scroope, who had married his sister, was granted him. He was also restored to his estate, although now reduced to half its value; and he fixed his abode at a house he had built near Beaconsfield. He next paid his court to Cromwell, to whom his mother was related; and the very noblest tribute of his muse was offered to the protector. On the restoration, he was equally complaisant to Charles II, but not so successful; which being remarked to him by the king, he replied, "Poets succeed much better in fiction than in truth." In a reign of oblivion for past offences, and no regard for character, his wit and poetry soon made him a favorite at court and in the highest circles; and he had also interest to obtain a seat in all the parliaments of the reign. In 1665, he was emboldened to request the provostship of Eton college, which was given him; but Clarendon refused to set the seal to the grant, which produced a rupture of the friendship that had long subsisted between them; and he joined Buckingham and the enemies of that minister. On the accession of James II, Waller, then in his eightieth year, was chosen representative for Saltash; and he appears to have taken advantage of his intimacy with that monarch to give him very sound advice. He now turned his thoughts to devotion, and composed Divine Poems. He died at Beaconsfield, in 1687, in the eighty-third year of his age. His intellectual powers were of a superior order; he was at once a prompt, elegant and graceful speaker, while the wit and pleasantness of his conversation made him a favorite, even with those whom his abject pliancy must have disgusted. English versification is much indebted to him; and for ease, gallantry, gayety, brilliancy and wit, his amatory poetry has not been surpassed. The dignity which he assumes in some heroic themes he not unfrequently attains; and his thoughts are often worthy of the sonorous versification in which they are clothed. He was not, however, sufficiently natural for pathos, or elevated for sublimity; but he trifles with ingenuity, and is serious with an air of grandeur; nor will he ever be entirely neglected by the student of English poetry. He left several children by his second wife, one of whom, a daughter, was married to doctor Birch; and Edward, who succeeded to the estate, ultimately became a Quaker. His descendants still reside at Beaconsfield, in great affluence.

Wallingford; a borough and market town of England, Berkshire, on the Thames. It has sent two members to parliament from the twenty-third year of Edward I, but, by the reform act of 1832, is deprived of one of its members. The number of voters was previously about 210, the right of election having been in the corporation, and inhabitants paying scot and lot. Population, 2542.

Wallis, John, a celebrated mathematician, born in 1616, at Ashford, in Kent, where his father was minister, was educated for the church at Emanuel college, Cambridge, and, having regularly taken his degrees, entered into holy orders, and, in 1641, became chaplain to a Yorkshire baronet. In 1643, he obtained a living in London, and, the following year, was one of the secretaries to the assembly of divines at Westminster. He was one of the first members of the scientific association which gave birth to the royal society, and, in 1649, was appointed, by the parliamentary visitors, Savilian professor of geometry at Oxford. In 1653, he published a grammar of the English tongue, written in Latin, for the use of foreigners. He was admitted to the degree of doctor of divinity in 1654, and, on the death of Langbaine, was chosen *custos archivorum* to the university. He was particularly skilful in the art of cryptography, or deciphering; and having by this means been enabled to render considerable service to the royal cause, he was, on the restoration of Charles II, very favorably received at court, and made one of the royal chaplains. In 1661, he was one of the divines appointed to review the book of Common Prayer; and, as he complied with the terms of the act of uniformity, he continued a steady conformist to the established church till his death. When the royal society was founded, in 1663, the name of doctor Wallis was included in the list of the earliest members; and he added much to the reputation of that body by his valuable contributions to the Philosophical Transactions. After a long life devoted to science and to the duties of his clerical profession, he died at Oxford, in 1703. Among his mathematical works, the most important are *Arithmetica Infinitorum; Mathesis Universalis, sive Opus Arithmeticum; Mechanica, sive de Motu Tractatus geometricus; De Sectionibus Conicis Tractatus*; and his Algebra. He also published some of the writings of Archimedes, Ptolemy, Aristarchus, and Porphyry. His works, including various treatises on theology, were published at Oxford, 1692—99 (3 vols., folio); and a volume of his sermons, printed from the original manuscripts, appeared in 1791.

Wallis; the German name of the Valais. (See *Valais*.)

Walloons; the inhabitants of the district situated between the Scheldt and the Lys, to which belongs a part of the former French Flanders and the present French departments of the North and of the Channel (*pas de Calais*). In a more general sense, *Walloons* are the inhabitants of the former Henault, Namur, Luxemburg, Limburg, and of part of the former bishopric of Liege, who speak Walloon or old French, considered by some as a relic of the ancient Gallic language, mixed, however, with Spanish, German, &c. words. In the old geographical works we find a *Walloon Flanders*, and a *Walloon Brabant*. The name either comes from *Wall* (water or sea), as these tribes in Germany lived on the sea-coast, or from the old German word *Wahle*, which signifies a foreigner, especially an Italian (hence *walnuts*); and *Wälschland*, in German, signifies Italy. (In the same way the Polish word for foreigner is used to signify, particularly, a German.) The Walloon guards, which formerly constituted part of the Spanish household troops, were so called, because, as long as Spain was the mistress of the Netherlands, these guards were recruited from the Walloon part of Flanders. The Walloons, in the thirty years' war (q. v.), were distinguished for valor, and for their savage spirit.

Walmoden, Louis, count of; Austrian lieutenant field-marshal, born in Vienna, in 1769, where his father, John Louis, earl of Walmoden, a natural son of George II, was British minister. He was at first in the Hanoverian, then in the Prussian, and at length entered the Austrian service, in which he distinguished himself from 1796. In the campaign of 1813, he was victorious over the French on the Görde. In 1817, when count Nugent entered the Neapolitan service, he took his place as commander of the Austrian troops in the kingdom of Naples.

Walnut (*juglans*). The walnuts differ from the hickories, in many respects, in the structure of their flowers and fruit; and the last have been formed into a distinct genus under the name of *carya*. (See *Hickory*.) The foliage and general habit of the trees are very similar, but a difference is again perceived in the properties of the wood. The true walnuts are easily recognised by the fruit, the outer rind being destitute of valves, and the external surface of the nut rugose and irregularly furrowed.—The common European walnut, improperly called with us *English* walnut (*J. regia*), was discovered by Michaux the elder, growing wild in the province of Ghilan, which lies on the Caspian sea, between lat. 35° and 40°. It was introduced into Europe at a remote period, and is now common in the central parts of that continent, but flourishes most in Italy, Spain, and the south-western departments of France. It is a lofty and beautiful tree. The fruit, in the wild state, contains a small, hard nut, of inferior quality; but in the cultivated varieties, the nut is much larger, the shell becomes thin enough to be easily crushed by the fingers, and the kernel is very agreeably tasted. These nuts are highly esteemed, and are often served up at desserts, and form an article of commerce. The oil expressed from them is in general use as an article of diet, in those districts where the tree abounds, and serves a still more important purpose in the preparation of fine colors: it is preferred on account of the complete and rapid manner in which it dries, and the facility of obtaining it perfectly limpid, by diffusing it upon water in large shallow vases. In copper-plate printing at Paris, it is considered indispensably necessary for a fine impression, either in black or colors. By boiling the husks when beginning to decay, and the bark of the roots, a substantial dark-brown color is obtained, which is used by dyers for woollens, and also by cabinet-makers to stain other species of wood in imitation of walnut. The fruit, in a green state, before the shell hardens, is much used for pickling, and also as an adulteration of soy sauce. The leaves, strewed on the ground, annoy worms. Before mahogany was imported so abundantly into Europe, the wood was employed, almost exclusively, in cabinet-making, and is still in general use in the interior; and the furniture is far from being inelegant. It is preferred for the stocks of muskets, as it is lighter, in proportion to its strength and elasticity, than any other wood. Great quantities of wooden shoes are also made of it. Seven or eight varieties are cultivated. When propagated for timber, the nut is sown; but when fruit is the object, inarching from the branches of fruit-bearing trees is preferable. Budding has also been tried with success, and the buds succeed best when taken from the base of the annual shoots: ordinary-sized buds from the upper parts of such shoots generally fail. Trees that have not been grafted or budded, may be induced to produce blossoms by ringing the bark. It is especially necessary to protect amputated limbs from the weather, by nicely adapting a covering of clay to the exposed surface, so as entirely to exclude the rain. This valuable tree would be a desirable accession to the U. States. Its timber is, indeed, inferior to our own black walnut, but the excellence of the fruit, and the decided superiority of the oil in the preparation of colors, strongly recommend it to American cultivators. It has succeeded perfectly in many parts of the country; but we are not aware that plantations on a large scale have been any where attempted.—The black walnut (*J. nigra*) is found in most parts of the U. States, the extreme north and east excepted, and the low district of the Southern States, where its absence seems to be owing to the nature of the soil, which is either too sandy or too wet. It requires a deep and fertile soil, and in favorable situations the trunk often attains the diameter of six or seven feet. It is one of our largest trees, and yields to none in the majesty of its appearance. The nuts are sold in the markets of our principal cities, and are often served upon table. The shell is very hard, and the kernel is divided by firm woody partitions, but has a sweet and agreeable flavor, though inferior to the European. The wood is very strong and very tenacious, when thoroughly seasoned is not liable to warp and split, and remains sound a long time, even when exposed to the influence of heat and moisture: the grain is sufficiently fine to admit a fine polish, and it is, besides, secure from the attacks of worms. In Kentucky and Ohio, it is split into shingles, and sometimes enters into the composition of the frames of houses, but is chiefly employed in cabinet-making wherever it abounds. By selecting pieces immediately below the first ramifications, the furniture is sometimes rendered extremely beautiful, from the accidental curlings of the grain; but, as the color soon changes to a dusky hue, wild cherry is frequently preferred. It is employed for the stocks of muskets, and is said to make excellent naves for wheels. At Philadelphia, coffins are exclusively made of it. Black walnut is excellently adapted to certain uses in naval architecture, but should never be wrought till perfectly seasoned, when it is said to be more durable, though more brittle, than the white oak. In the ship-yards of Philadelphia, it is often used for knees and floor timber; but in the vessels built on the Ohio, it constitutes the principal part of the frame. On the Wabash, canoes are made of it, which are highly esteemed for their strength and durability. Planks, two inches in thickness, are exported to England in small quantities.—The butternut (*J. cinerea*) is abundant in the Northern, and especially in the Western States. It is a much smaller tree than the preceding, rarely exceeding fifty feet in height, with a trunk ten or twelve inches in diameter. The fruit is elongated, covered externally with a viscid, adhesive substance; and the nut is hard, very rough externally, and deeply and irregularly furrowed. The nuts are sometimes brought to market. The wood is light, of a reddish hue, and possesses little strength, but lasts long, and is secure from worms. It is sometimes used in the construction of houses in the country, but never in cities. From its resistance to heat and moisture, it is esteemed for posts and rails, for troughs for the use of cattle, and is preferred to the red maple for corn-shovels and wooden dishes, as it is lighter and less liable to split. At Pittsburg, it is sometimes sawn into planks for the construction of small skiffs, which, on account of their lightness, are in request for descending the river. At Windsor, in Vermont, it is used for the panels of coaches and chaises, and is perfectly adapted to this purpose. The bark affords one of the best cathartics known, operating always with certainty, and without pain or irritation even in the most delicate constitutions: it is not, however, in general use except in the country. A dark-brown dye is also obtained from the bark, which is employed in the country for woollens; but that afforded by the black walnut is preferred. By piercing the trunk early in the spring, sugar may be obtained, but of inferior quality to maple sugar.

Walpole, Robert, earl of Orford, third son of Robert Walpole, esquire, was born at Houghton, his father's seat, in Norfolk, in 1676, and, in 1696, was admitted a scholar of King's college, Cambridge. In 1698, in consequence of the death of his elder surviving brother, he became heir to the family estate, on which he resigned his scholarship. He was then taken from college by his father, and, in the jovial life of a country gentleman, soon lost his inclination for literature. In 1700, he married the daughter of sir John Shorter, lord mayor of London, and, soon after, succeeded to his paternal estate by the death of his father. He was also returned representative for Castle Rising, and became an active member of the whig party. In 1702, he obtained his election for King's Lynn, which he also represented in several succeeding parliaments. In 1705, he was nominated one of the council to prince George of Denmark, as lord high admiral of England; in 1708 was appointed secretary at war, and, the following year, treasurer of the navy. In 1710, he was one of the parliamentary managers in the trial of Sacheverel; but, on the dissolution of the whig ministry, he was dismissed from all his employments, and, soon after, was voted, by the house of commons, guilty of a high breach of trust, and notorious corruption in his office of secretary at war; for which imputed offence he was expelled the house, and committed to the Tower of London. This severity, being a party proceeding, little affected his character; so that, in 1714, the borough of Lynn reëlected him; and he became a formidable opponent of the tory administration. On the accession of George I, a new whig ministry was formed; and Walpole, who had previously ingratiated himself with the family of Hanover, was appointed paymaster of the forces, treasurer of Chelsea hospital, and a privy counsellor. Being nominated chairman of the secret committee formed to inquire into charges against the late ministers, he drew up and moved the impeachment of lord Bolingbroke, the earl of Oxford, the duke of Ormond, and the earl of Strafford. In the subsequent year, 1715, he displayed so much energy and vigor in support of government during the rebellion, that he was raised to the important posts of first lord of the treasury and chancellor of the exchequer. In the course of the two following years, a disunion took place in the cabinet on the question of supplies, to enable George I to vindicate his purchase of the duchies of Bremen and Verden against Charles XII of Sweden; and Mr. Walpole resigned. On the day of his resignation, he brought in the sinking fund bill, which he subsequently rendered nugatory by misapplication. In the next session, he became a strenuous opposer of measures which, had he been in place, he would as certainly have supported, and mainly contributed to the rejection, by the commons, of the peerage bill of 1719. He was the opposer, in 1720, of the South sea scheme for liquidating the national debt, on which subject he wrote a pamphlet. At length the earl of Sunderland, finding his ministry involved in great difficulties, made overtures to Walpole, who resumed his former post of paymaster of the forces. His reputation as a financier induced all eyes to be directed towards him on the occurrence of the unprecedented disasters arising from the bursting of the South sea bubble; and lord Sunderland being obliged to retire, on account of his being implicated in the affairs of that company, Walpole resumed his post of first lord of the treasury, and premier. He was indisputably a most serviceable minister to the house of Brunswick, and mainly contributed to the discomfiture of the plots and intrigues of the Jacobite party in favor of the Pretender. His general policy was principally characterized by the desire of preserving peace abroad, and avoiding subjects of contention at home. He was an able financier, and certainly exerted himself, with considerable success, to improve the trade and revenues of the country, although the introduction of the excise scheme forms a very dubious claim to applause. A pursuit of useful rather than of splendid objects, joined to a sincere zeal for the Protestant succession, formed the leading principles of his government; and the means which he employed were prudence, vigilance, and a degree of corruption not greater than what was practised by many of his predecessors, but more general and systematic. Walpole is the reputed author of the saying, that "All men have their price;" but his biographer, archdeacon Coxe, asserts that the words were "all *those* men," speaking of a particular body of his opponents. He was an artful rather than an eloquent speaker, and discerned, as if by intuition, the prevalent humor of the house, and pressed or receded accordingly. He was particularly clear in financial debates, and a most excellent and diligent man of business. In private life, he was distinguished by frankness of manners and a species of jovial good-nature; but his mirth was coarse, and his moral conduct assumed much of the easy license of rank and fashion. Letters he neither loved nor patronised, except the productions of subaltern writers in his praise or defence, whom he rewarded liberally. On the whole, without being an exalted character, he was an able minister. His ministry was finally shaken by the unpopularity of his exertions to maintain peace with Spain, in 1739, from which time the opposition to him gained ground, until, in 1742, he resigned, and was created earl of Orford. A parliamentary inquiry into his conduct was subsequently instituted; but, after repeated fruitless attacks, all proceedings against him were dropped. His health soon after began to decline, owing to repeated attacks of the stone, which at length carried him off, March 18, 1745, in the sixty-ninth year of his age.—See Coxe's *Memoirs of Sir Robert Walpole* (3 vols., 4to., 1798).—His brother *Horatio* (lord Walpole) was born in 1678. He filled several offices under government, and was an able diplomatist. He was raised to the peerage in 1756, and died the following year. He wrote several political tracts, and an answer to Bolingbroke's Letters on History. (See Coxe's *Memoirs of Horatio Lord Walpole.*)

Walpole, Horace, earl of Orford, third and youngest son of sir Robert Walpole, was born in 1718. He received his early education at Eton, whence he removed to King's college, Cambridge. He quitted the university without a degree, and, by the interest of his father, was nominated to three valuable sinecures, which he held to the time of his death. In 1739, he set out on a tour to the continent, accompanied by the poet Gray, with whom he had a difference, and they parted, Walpole subsequently taking all the blame upon himself. He entered parliament in 1741, as member for Callington, and spoke spiritedly in opposition to a motion against his father, but was, in general, a very silent and inactive member. It was soon apparent that he was not destined for the paths of public life. With much vivacity and love of occupation, his chief delight was in the indulgence of literary curiosity, and a taste for antiquity and the fine arts. In 1747, he represented the borough of Castle Rising, and, in 1754 and 1761, that of King's Lynn, and always adhered to the whig principles in which he was educated; and his parliamentary conduct was uniformly correct and independent. In 1748, he purchased his small but celebrated villa at Twickenham (q. v.), called *Strawberry hill*, which it formed no small part of the business of his future life to render a miniature specimen of Gothic architecture, and a splendid collection of pieces of art, and relics of antiquity, many of them curious and valuable, and others of rather a trifling description. He first made himself known as a writer by some papers in the World, and a few poems in Dodsley's Collections. His first separate publication appeared in 1752, entitled *Ædes Walpoliana*, being a description of his father's seat at Houghton. In 1757, he set up a printing-press at Strawberry hill, at which he printed

Gray's Odes, and various other works. From his own press also appeared, in 1758, the first edition of his Catalogue of Royal and Noble Authors. This was followed by a collection of Fugitive Pieces, and, in 1761, by his Anecdotes of Painting in England (2 vols., 4to.), compiled from the papers of the artist George Vertue. Two more volumes were afterwards added; and the whole forms a valuable collection. In 1764, his friendship for general Conway drew from him a pamphlet on the dismissal of that officer from the army, on account of the vote which he gave on general warrants. In 1765, appeared his romantic fiction of the Castle of Otranto, the prolific parent of the Radcliffe romance, and a vast variety of similar fictions. Being at Paris in 1765, he composed a French letter to Rousseau, in the name of the king of Prussia, by way of exposing the vanity and self-consequence of that singular character, who acted on the occasion with his usual extravagance. Walpole was, however, scarcely excusable for this attack upon the morbid sensibility of a man who had given him no provocation; but his correspondence with Hume supplies a very extraordinary specimen of his aristocratical contempt for authors by profession. In 1767, he declined being again chosen to sit in parliament; soon after which appeared his Historic Doubts on the Life and Reign of King Richard III. It is an acute and ingenious performance, but failed in convincing the public; and the brief, but conclusive investigation of it by Gibbon, in his miscellaneous works, has probably disposed of the question for ever. Mr. Walpole forgot his dignity so much in regard to this performance, as to expunge his name from the list of members of the antiquarian society, because two papers were read before them controverting part of his evidence. In 1768, he printed his Mysterious Mother—a very powerfully written tragedy, on a disagreeable subject, and one which altogether precludes it from the stage. About this time occurred the transaction with the unhappy Chatterton (q. v.), which subjected him to so much censure; but his fault, on this occasion, appears to have been mainly his general apathy towards literary men. He visited Paris in 1771 and 1775, and became much distinguished in the circle of the celebrated madame du Deffand, who particularly admired him. The principal incident of his advanced years was his accession to the earldom of Orford, by the death of his nephew—an elevation which gave him more trouble than satisfaction, and which made no alteration in his mode of living or literary pursuits. His death, which was hastened by a hereditary gout, that had reduced him to a cripple, took place in March, 1797, in his seventy-ninth year. He bequeathed to Robert Berry, esquire, and his two daughters, all his printed and manuscript works, of which a collective edition was published in 1798 (5 vols., 4to.). The most valuable addition to what had formerly appeared consisted in his letters to a great variety of correspondents, written with great ease and vivacity, but occasionally exhibiting affectation and effort. He is certainly, however, one of the most lively and witty of letter-writers, but too frequently deemed his letters a grace and a favor accorded to his literary correspondents, which superseded the necessity of any thing more substantial. His Memoirs of the last ten Years of the Reign of George II (2 vols., 4to., 1822) are of the highest value for the domestic history of that period. In 1825, appeared his Letters to the Earl of Hereford, forming the ninth volume of a quarto edition of his works. See, also, the *Walpoliana* (2 vols., 18mo), and the *Reminiscences of Horace Walpole* (1826). His plan of life was formed upon a selfish principle of self-enjoyment. As an author, he ranks respectably among general writers.

Walpurga, Walburga, or Walpurgis; a saint, born in England, sister of St. Willibald, first bishop of Eichstädt, in Germany, and niece of St. Boniface, the apostle of the Germans. She went, like her uncle and brother, to Germany as a missionary, and became, about the middle of the eighth century, abbess of a convent at Heidenheim, in Franconia. She must have been a learned woman, as she was considered the author of a Latin description of the Travels of St. Willibald. After her death (776 or 778), she received the honors of a saint, was believed to work many miracles, and chapels in honor of her were built in many places. From the circumstance that in German almanacs the name *Walpurgis* has been accidentally placed, sometimes alone, sometimes together with the names of the apostles Philip and James, against the first of May, the night previous to the first day of May, so famous, in German legends, for the assembling of the witches, has been called *Walpurgis night*. The first of May is an important day for the German cultivator: many contracts are made at this time; the labors of the field assume new activity, &c. It is not strange that, on so important a day, the devil and the witches were supposed to be more active than usual, and to assemble in a particular place to organize the work of evil. This superstition, however, may have had its origin in the ancient German mythology. Hence straw was burned in many places, on the Walpurgis-night, with a view of dispersing the malignant beings—a custom still preserved in some places. The chief convocation of the witches was considered to take place on the Brocken. Many customs connected with the first of May, in Germany, originated in this superstition.

Walrus (*trichecus rosmarus*); a marine quadruped, resembling the seals in the structure of the feet, but differing in the teeth and digestive system. It is large and unwieldy, sometimes attaining the weight of 2000 pounds, and inhabits unfrequented coasts in the arctic seas. The head is oval, short, small, and flat in front: the flat portion of the face is set with very strong bristles, which are pellucid, about a span in length, and twisted; the orifices of the ears are very small, but the sense of smelling appears to be exceedingly acute; the incisors are four in the upper jaw, but the two middle ones are shed as the animal advances in age; the upper canines are large, elephant-like tusks, directed downwards; the feet are very short, and the toes are connected by a membrane, and armed with strong nails; the tail is short. Formerly, vast herds of these animals frequented the shores of the islands between Northern Asia and America, Davis's straits and Hudson's bay, in lat. 62°, and even as far south as the Magdalen islands, in the gulf of St. Lawrence, between lat. 47° and 48°; but, at present, the walrus is no where numerous, except on the icy shores of Spitzbergen and the remotest northern coasts of America. Voyages were once made to procure its tusks and oil, and it is said that 1200 or 1500 individuals have been sometimes killed at once out of a herd. The walrus is slow and clumsy while on land, but quick and active in the water. It often comes on shore, and the female brings forth her young there in the spring. It is fearless and inoffensive, unless disturbed, and strongly attached to its mate and young, but becomes fierce and formidable when attacked, especially if the young are present, furiously endeavoring to sink the boats by rising and hooking its tusks over their sides; and frequently the violence of its blows is sufficient to stave the planks of small boats. Its principal food, it is said, consists of shell-fish. The tusks grow to the length of ten or twenty inches, or sometimes even three feet, weighing from five to ten pounds. They are worked like ivory, but turn yellow in a shorter time. The skin is about an inch in thickness, and is used for a variety of purposes.

Walsall; a market town and parish of England, in the county of Stafford, 116 miles from London; population, 15,066. By the reform act of 1832, Walsall was constituted a borough, returning one member to parliament.

Walsingham, Thomas of, an English chronicler of the fifteenth century, was a Benedictine monk of the abbey of St. Alban's, where he held the office of precentor; and he also styles himself royal historiographer. His works are, *Historia Brevis*, containing the annals of England, from the end of Henry III's reign, forming a continuation to the history of Matthew Paris; and *Hypodigma Neustriæ*, giving an account of the occurrences in Normandy, from the time of Rollo to the sixth year of Henry V. These pieces were published by archbishop Parker (London, 1574, folio).

Walsingham, sir Francis, an English statesman, in the reign of queen Elizabeth, descended of an ancient family, was a native of Chiselhurst in Kent. He was educated at King's college, Cambridge, and, at an early age, travelled on the continent, and acquired a knowledge of the languages, manners and policy of foreign nations. His first employment was that of ambassador to the court of France, whence he returned in 1573, and, being appointed one of the principal secretaries of state, and a member of the privy council, received the honor of knighthood. In the important situation which he filled, he rendered great services to his sovereign, and contributed, by his policy, to the stability of her government. The means which he adopted, however, for the attainment of his purposes, were not of the most honorable description. Lloyd, in his State Worthies, says, "Sir F. Walsingham outdid the Jesuits in their own bow, and over-reached them in their equivocation and mental reservation; never settling a lie, but warily drawing out and discovering the truth. Few letters escaped his hands, whose contents he could read and not touch the seals. He had the wonderful art of weaving plots, in which busy people were so entangled that they could never escape, but were sometimes spared upon submission; at others, hanged for example. He would cherish a plot for years together, admitting the conspirators to his own and the queen's presence familiarly, but dogging them out watchfully." Such was the policy of this statesman, who is stated to have maintained fifty-three agents and eighteen spies in foreign courts. In 1581, he went on a second embassy to France, to treat of a marriage between Elizabeth and the duke of Anjou; and, in 1583, he was sent to the court of James VI of Scotland, whence he is said to have brought back a higher opinion of the abilities of the future sovereign of Britain than the event justified. He acted a very important, but by no means honorable part, in the detection of Babington's plot against the life of the queen, in 1586, and in the subsequent proceedings against Mary, queen of Scots. His death took place in April, 1590, in the ninetieth year of his age; and his remains were interred privately, by night, in St. Paul's church, apprehensions being entertained that his corpse might be arrested on account of his debts. An account of his negotiations and his despatches from France appeared under the title of the Complete Ambassador (1655, folio); and a work called *Arcana Aulica* has been ascribed to him, but its authenticity is questionable.

Waltham; a post-town in Middlesex county, Massachusetts, on the north side of Charles river, which separates it from Newton; ten miles west of Boston, thirty-four east by north from Worcester, 426 miles from Washington: population, in 1820, 1677; in 1830, 1859. It is a pleasant town, and contains two Congregational meeting-houses, and three cotton manufactories, which are among the most extensive and best conducted establishments of the kind in this country. They belong to a company of gentlemen residing principally in Boston. The capital stock amounts to $600,000, three fourths of which are vested in mill privileges on Charles river, land, houses, three brick manufactories, and machinery, comprising 8064 spindles and 231 looms. These works employ about 400 persons, principally females, and from 60 to 80 men in making machinery. The quantity of cotton annually used amounts to about 700,000 pounds, and the cloth made to 2,000,000 yards. These works were commenced in 1814; the whole completed in 1821. There are also bleaching works, carried by steam, at which two tons of goods are daily bleached, calendered and packed. There are two schools supported by the proprietors of the factories, at which instruction is regularly provided without charge.

Walther of the Vogelweide, one of the most eminent old German lyric poets of the class of *Minnesingers* (q. v.), was descended from a noble, but not wealthy family, whose castle, Vogelweide, is supposed to have been situated in Upper Thurgau. Walther resided at the court of Frederic, the eldest son of Leopold VI, duke of Austria and Stiria. Frederic took the cross in 1195, departed for Palestine in 1197, and died the ensuing year, on the crusade. Walther seems to have left the court of Vienna immediately after the loss of his royal patron. After the murder of Philip of Suabia, in 1208, he set out on his wanderings. At the court of Philip Augustus, king of France, he seems to have met with a kind reception; but he remained longest at the splendid court of the landgrave of Thuringia, who had always around him a circle of poets, and instituted that celebrated poetic contest, the war on the Wartburg (1207), in which Walther took part. Walther shows himself, in his political poems, a warm defender of the imperial power and honor, against the encroachments of the clergy and their head in Rome. Some time after the arrival of Frederic II in Germany, we find Walther again at the court of Vienna, where he was kindly treated by Leopold VII. After Leopold's death, in 1230, Walther seems to have left the court of Vienna, of the decline of which he complains; and of the further events of his life, we only know that he was engaged in a crusade, probably the one undertaken by the emperor Frederic II, to Palestine, in 1227. The year in which Walther died is as uncertain as that of his birth; he must have lived, however, till after 1230. The latter years of his life were devoted to a pious contemplation of the world, of death, and eternity. His poems, all of them lyric, may be found in the manuscript collections of the *Minnesingers*. (q. v.) Lachmann has published them according to the original text (Berlin, 1827). Akland has given an account of the life and character of this poet under the title *Walther von der Vogelweide*, etc. (Stuttgart, 1822).

Walton, Isaak, an ingenious and amusing writer, was born at Stafford, in August, 1593. He was probably of low parentage, for he settled in London as a semster or milliner and linen-draper, and kept a shop in Fleet street. About 1632, he married the sister of bishop Ken, and, in the beginning of the civil wars, he removed from the metropolis. His death took place at Winchester, in 1683. He was the editor of several publications, and gained considerable celebrity by a treatise entitled the Complete Angler, or the Contemplative Man's Recreation, which has passed through numerous editions; and his Biographical Memoirs of bishop Sanderson, Hooker, sir H. Wotton, George Herbert, and doctor Donne, which have attained an equal share of popularity. Though possessed of much general information, Walton made no pretensions to learning; and the charm of his writings depends on the air of verisimilitude and unaffected benevolence which they exhibit. Some short pieces of poetry are interspersed in his works, which evince much taste and feeling.

Walton, Brian; a learned divine and critic, born about 1600, and educated at Cambridge, where he took the degree of master of arts, in 1623. Removing to London, he obtained a rectory in 1626, and, ten years after, was instituted to the rectory of St. Giles's in the fields. In 1639, he commenced doctor of divinity. In the civil wars, he favored the royal cause, and was consequently obliged to take shelter at Oxford. There he formed the scheme of a Polyglot Bible, to which he owes his literary reputation. This work was completed and published in six volumes, folio, in 1657, under the following title: *Biblia Sacra Polyglotta complectentia (textus originales) Hebraicum, cum Pentateucho Samaritano, Chaldaicum, Græcum (versionumque antiquarum), Samaritanæ, Græcæ LXX Interpp., Chaldaicæ, Syriacæ, Arabicæ, Æthiopicæ, Persicæ, Vulg. Lat. quicquid comparari poterat: cum Textuum et Versionum Orientalium Translationibus Latinis.* Doctor Walton had several assistants in his laborious undertaking, of whom the principal was doctor Edmund Castell. On the restoration of Charles II, to whom he presented his Bible, with a new dedication (the original one to Oliver Cromwell having been cancelled), he was made one of the royal chaplains; and, in 1660, he was raised to the bishopric of Chester. His death took place in London, 1661.

Walton, George, a signer of the Declaration of Independence, was born in Frederic county, Virginia, about the year 1740. He possessed an eager desire of knowledge, and devoted to its acquisition all the moments he could spare from his early occupation as an apprentice to a carpenter. At the expiration of his term of service, he removed to Georgia, where he applied himself to the study of the law, and, in 1774, was admitted to the bar. Among the patriots who assembled at the "liberty pole," at Tondee's tavern, Savannah, to devise measures of resistance to the encroachments of England, he appeared, and took a prominent part. In January, 1775, he was chosen a member of a committee appointed to prepare a petition to the king; and, in February, 1776, he was elected one of the Georgia delegation to the national congress, and continued a member of that body, with little intermission, until 1781. In December, 1778, he was appointed colonel in the militia, and received a wound in the thigh, during the defence of Savannah. He was made prisoner, but exchanged in September, 1779. He was twice chosen governor of the state, once a senator of the U. States, and, at four different periods, a judge of the superior courts, which last office he held fifteen years, until his death, Feb. 2, 1804. His powers were strong, and his temperament ardent.

Waltz (German *Walzer*, literally *roller*); a national German dance, common, however, among other nations of the continent, as Spain, &c., and of late introduced into England and the U. States. A waltz ought to be danced with much grace and precision; and the first note of each bar (the music being always written in $\frac{3}{4}$ or $\frac{3}{8}$ time) should be distinct, and longer than the two others. It is a mistake to suppose that the waltz music is always gay. The waltz of the north of Germany was grave and slow, whilst that of the south, particularly of Vienna, is gay, and may degenerate into a bacchanalian swiftness. The quick, gay waltz is the most common at present. Several waltz tunes are now often united, to prevent monotony. One of the most important rules for waltzing well, yet often neglected by foreigners, is, that both the dancers should stand parallel, and directly opposite each other.

Wampum (from *wampi* or *wompi*, signifying, in the Massachusetts Indian language, *white*, the color of the shells most frequent in wampum belts); shells, or strings of shells, used, by the American Indians, as money. These, when united, form a broad belt, which is worn as an ornament or girdle. It is sometimes called *wam-*

wampague, or *wampeague*, or *wampampeague*, of which *wampum* seems to be a contraction.

Wandering; a technical term with German mechanics, to denote their custom of travelling into foreign countries after finishing their apprenticeship. Formerly, they were bound by law, in all German states, to travel in this way, otherwise they could not make their masterpieces; that is, those specimens of their skill, by which they proved to the corporation that they were fit to become masters, and which they are still bound to exhibit in several parts of Germany where corporations exist. Whether this habit of wandering arose from the universal disposition of the Germans for travelling into foreign countries, which scatters German mechanics all over the world, or from the unsettled habits of many classes in the middle ages, as the knights, the *vacantivi* (see *School*, vol. xi, p. 251), or the frequent campaigns of the Germans in Italy, where the servants of the noblemen learned many arts not known in Germany, we cannot here discuss. In summer, mechanics may always be seen on the roads in Germany, carrying knapsacks and sometimes a few tools. They receive dinner and lodging, or money, from the corporation in each place, or from the master-workmen, if there are only a few in a place. Many peculiarities and absurdities are connected with this receiving of presents. Instead of a passport, they carry "wandering-books," so called, which must be kept in good order, and shown to the police of the places through which they pass.

Wanker, Ferdinand Geminian, doctor of theology, professor of moral philosophy in the university of Freiburg, was born in 1758, in Freiburg, in the Brisgau, was made professor of morals in 1788, and elected archbishop, but died in 1824, before the papal confirmation arrived from Rome. His works would prove instructive to many Catholics who believe that they abandon their faith if they give up certain things which are inconsistent with the present state of intelligence, or with the testimony of history. Among his works are the following:—On Reason and Revelation, with a View to the Moral Wants of Mankind (Vienna, 1802, 2d ed., Freiburg); On the Matrimonial Tie, considered with Respect to Natural Law and Pure Morality (1810); and System of Christian Morals.

Wapatoo Island; an island of North America, formed by the junction of the Multnomah with the Columbia, twenty miles long and ten broad. Its numerous ponds abound with the common arrowhead (*sagittaria sagittifolia*), to the root of which is attached a bulb, growing in the mud. This bulb, to which the Indians give the name of *wapatoo*, is the great article of food, and almost the staple article of commerce on the Columbia. It is never out of season, so that, at all times of the year, the valley is frequented by the neighboring Indians, who come to gather it. It is collected chiefly by the women, who take a light canoe in a pond where the water is as high as the breast, and, by means of their toes, separate the root from the bulb, which, on being freed from the mud, rises immediately to the surface of the water, and is thrown into the canoe. This plant is found through the whole extent of the Columbia valley, but does not grow farther eastward.

Wapping; a village and parish of England, in Middlesex, on the north bank of the Thames, one of the out-parishes of London, on the east side of the city, inhabited chiefly by persons employed in trade, connected with the shipping of the port of London; population, 5889. Here are the London docks, St. Catharine's docks, &c., and the stupendous warehouses belong to the custom-house, &c. (See *Docks*, and *London*.)

War, in general; a state of hostility and violence between individuals, or, in a more common sense, between sovereign nations, who, having no superior power to which to appeal for the decision of their disputes, have recourse to force and arms. In contradistinction to international or public war, *civil war* designates a similar state of violence existing between different portions or members of the same nation. International wars are generally distinguished into offensive wars, or wars of attack, and defensive wars, or wars of defence. The party which carries on what is called an offensive war is not, however, by any means, always the original author of the hostile measures, since the seeming assailant is often forced into his position by the violation of his rights, or the menacing posture of the other party. It is well known that both belligerents aim to acquire the credit of acting on the defensive, partly to conciliate public opinion, which, though often mistakenly, commonly pronounces a defensive war justifiable, and condemns an offensive war; and sometimes, also, to secure the assistance of foreign powers, which has been guarantied, by treaty, to one or both parties, who may become the object of offensive measures. The right of declaring war, in monarchical governments, is commonly in the king, as the actual sovereign power, or the head of the executive, as in constitutional monarchies. In England and France, the king has the right to declare war and make peace; but this power is virtually controlled by the legislative power to grant or withhold supplies. In the U. States, the constitution provides (art. 1, sec. 8) that the congress shall have power to declare war, grant letters of marque and reprisal, raise and support armies, and provide and maintain a navy. It is not, in modern times, a common practice to make a formal declaration of war, or official previous notice to the enemy; but a domestic manifesto of the sovereign to his subjects, or to the nation, is considered as sufficient to apprize neutrals that a war actually exists. Thus, in the war between England and France, in 1778, the recalling of the British minister from Paris was considered the first public act of hostility; and there was no other declaration of war. So, in the war of 1812, between Great Britain and the U. States, hostilities were commenced, on our part, as soon as the necessary act of congress was passed, without waiting to communicate our intentions to the English government. Individuals have no right to commit acts of hostility, except in self-defence, without a commission from the proper authorities, and are liable to be treated as pirates and robbers if they undertake hostilities on their own responsibility. (See *Privateers*, and *Prize.*)—On the rights and duties of belligerents in general, see the articles *Nations, Law of;* and *Conquest*. See, likewise, *Soldiers, Strategy, Military Sciences, Army, Navy, Tirailleurs*, &c.

War, Private, or *Club-Law* (*jus manuarium;* in German, *Faustrecht*, fist-law). Throughout the countries which composed the Carlovingian empire, no feudal right was more universally established and exercised than that of private war, the immediate cause and systematic commencement of which are sufficiently to be found in the anarchy of the ninth and tenth centuries. During the abeyance of all regal or national authority, the great feudatories were, in fact, in the condition of foreign powers to each other: they were without any common superior jurisdiction, to which, had they been inclined, they could appeal for the redress of injuries; and the power of the sword alone remained to decide their quarrels. (See *Middle Ages*, and *Feudal System.*) Their example was followed by their subvassals, and the countries of Europe were perpetually ravaged with internal hostilities. In England alone, of all feudal countries, this scourge was little felt; and, though it cannot be said that the practice of private wars was unknown under the Norman kings, yet the right of waging these feuds was never recognised: their occurrence was denounced, and sometimes punished, as an offence against the king's peace, that is, against the supreme authority of the crown. (See Hallam's *Middle Ages*, vol. ii, chap. 8.) By the feudal customs of the continent, the right of private war was extended to all persons of noble quality, or, in other words, to all possessors of fiefs on knightly tenure. But they must be equal, in the scale of infeudation, with their adversaries; nor did every civil cause of offence justify an appeal to arms, but such deadly injuries only as are usually deemed capital crimes in modern jurisprudence, or such outrageous insults as no knight might endure. When the war was once begun, it might legally be espoused by the relations of both parties; and it was even incumbent on them, in some cases, to give aid in the quarrel, under pain of forfeiting the claims and inheritance of kindred. Still more were the vassals of each combatant involved in the contest, since, by the very essence of the feudal obligations, they were bound to defend and assist their lords. The means by which this pernicious custom was finally abrogated, were various. The most remarkable was the truce of God (q. v.), by which men were forbidden to assail their adversaries during any of the holy festivals, and also during the interval between every Wednesday evening and Monday morning, as embracing those days of the week which had been sanctified by the passion and resurrection of the Redeemer. At first, the truce of God, extending from France, was adopted throughout Europe; but, notwithstanding the anxiety of the church, and repeated decrees of popes and councils, its provisions appear to have been little regarded. The interposition of royal authority was necessary to restrain, and finally to extinguish, these bloody feuds; and the first step towards the accomplishment of this object dates from the ordinance of Louis IX, forbidding, under penalty of treason, the commencement of any private war until forty days after the commission of the act in which the quarrel had originated.

The opportunities of accommodation between the parties, given by this edict, which was known under the name of the *king's peace*, or *royal truce*, appear to have contributed essentially to diminish the number of private wars in France; and the endeavors of St. Louis, being followed up by Philip the Fair, and successfully completed by Charles VI and Louis XI, led, soon after the middle of the fifteenth century, to the total abolition of the practice in that country. In Germany, truces of this kind (called *landfriede*, peace of the land) were repeatedly declared for a certain period, during which private war was illegal. But the circumstance that Germany always continued to be divided among a great number of petty but independent sovereign princes, retarded the accomplishment of the efforts of the clergy and the emperors to effect the entire abolition of the practice. In 1486, a *landfriede* of ten years, the longest that had ever been established, was proclaimed; and it was soon followed by the perpetual peace (*ewiger landfriede*), entirely forbidding private war. (See *Chamber, Imperial*, and *German Empire*.)

War, Northern. (See *Northern War*.)

War of 1812—15. (See *Russian-German War*.)

War of Thirty Years. (See *Thirty Years' War*.)

War, Peasants' or Rural. (See *Peasants' War*.)

Warbeck, Perkin; an individual who played a singular part in the reign of Henry VII, giving himself out as the second son of Edward IV, who was supposed to have been murdered, in the Tower, by Richard III. It is difficult, at this distance of time, to decide upon his pretensions; but his ill success has set him down with posterity as an impostor. He was first heard of at the court of the duchess of Burgundy, sister of Edward IV, about the year 1490, when all were struck with his resemblance to that prince. Some authors have asserted that he was the natural son of Edward. Supported by the duchess of Burgundy in his pretensions, Warbeck at length (1496) ventured to make a descent upon England; but, being worsted in the attempt, he retired to Scotland, where he was well received by the king, who gave him the hand of Catharine Gordon, a young lady akin to the royal family. The Scotch king was, however, soon after prevailed upon to abandon his cause; and Warbeck landed in Cornwall, where he was proclaimed king by the name of Richard IV. But, while yet at the head of 10,000 men, he suddenly deserted his followers, on the approach of Henry, and took refuge in the sanctuary of Beaulieu. Having finally surrendered himself into the hands of the king, he was obliged to read a confession of his imposture, while standing in the stocks, and then thrown into the Tower (1499). Here he met with Edward Plantagenet, earl of Warwick, son of the duke of Clarence, and rightful heir to the crown, who had been a prisoner there for fifteen years. The unhappy boy listened with eagerness to the projects, suggested by Warbeck, for their deliverance, and they were both charged with a conspiracy to set themselves free, by seducing some of the guards and destroying the rest. Warbeck seems to have been excited, by the king, to inveigle Warwick into acts which would give a pretence for effecting his death. Bacon darkly hints, that Ferdinand of Spain was unwilling to assent to the marriage between his daughter, the unfortunate Catharine, and Arthur, prince of Wales, while the earl of Warwick lived. However this may be, Warbeck was convicted of treason, and hanged at Tyburn (1499); and Warwick was likewise convicted of high treason, by a jury of peers, and put to death for an offence which his faculties did not enable him to comprehend. Rey (*Essais Historiques et Critiques sur Richard III*, Paris, 1818) maintains that Warbeck was the son and lawful heir of Edward IV.

Warburton, William, a celebrated prelate of the English church, born at Newark-upon-Trent, in Nottinghamshire, in 1698, was the second son of an attorney, and, after being educated at school, was, in 1714, articled to an attorney at East Markham, in his native county. After completing a clerkship of five years, he was admitted in one of the courts at Westminster, and, returning to Newark, he engaged in legal practice. Not finding the profession adapted to his taste or talents, he relinquished it, and, in 1723, took deacon's orders in the church. His first work, consisting of Miscellaneous Translations, in Prose and Verse, from Roman authors, was published with a Latin dedication to sir George Sutton, who, in 1726, bestowed on him a small vicarage. Shortly after, he visited London, and formed an acquaintance with some of the inferior wits of that period, among whom was Theobald, then engaged on an edition of Shakspeare, to which Warburton became a contributor. In 1727, he began to distinguish himself as an original writer by his Inquiry into the Causes of Prodigies and Miracles, which he dedicated to sir Robert Sutton, through whose interest he was placed in the list of the king's masters of arts, on his majesty's visit to Cambridge, in 1728; and he thus supplied the want of an academical education. His patron also presented him to the rectory of Brand Broughton, in Lincolnshire, where he remained several years, during which he composed most of those works which contributed to the establishment of his fame. In 1736 appeared his Alliance between Church and State, or the Necessity and Equity of an established Religion and Test Law, which passed through four editions during the life of the author, though it is said to have given satisfaction neither to the zealots of the church nor to the advocates for religious liberty. The first volume of his chief work was published, in 1738, under the title of the Divine Legation of Moses demonstrated on the Principles of a Religious Deist, from the Omission of the Doctrine of a Future State of Rewards and Punishments in the Jewish Dispensation. This paradoxical performance met with adversaries among all parties, who concurred in criticising and censuring the theory on which it is founded. Undismayed by animadversion, he published a Vindication of his opinions, and persevered in the prosecution of his work. Having published, in the literary journal called the Works of the Learned, in 1739 and 1740, a defence of the Essay on Man, against the remarks of De Crousaz of Geneva, Pope acknowledged his obligations to his advocate, and an intimacy ensued between them. On his death, in 1744, Pope bequeathed to our author half his library, and the copy-right of such of his works already printed as were not otherwise disposed of. Among the numerous antagonists of Warburton and his Divine Legation, were doctors Middleton, Pococke, R. Grey, Sykes and Stebbing, against whom he published, in 1744 and 1745, two defences, in which he treats all his opponents, except Middleton, with a high degree of asperity and self-confidence. He became, in 1746, preacher to the society of Lincoln's inn; and, in the following year, he appeared as the editor of Shakspeare. He now rapidly advanced in the course of preferment in his profession, becoming prebend of Gloucester in 1753, king's chaplain in ordinary in 1754, then prebend of Durham, D. D. by archiepiscopal mandate, dean of Bristol in 1757, and, two years after, bishop of Gloucester. The fifth volume of the Divine Legation was published in 1765; and some remarks which he introduced on the character of doctor W. Lowth, father of the bishop of London, involved him in a new controversy, in which he was assisted by doctor Richard Hurd. In 1768, he established a lecture at Lincoln's inn, on the evidence in favor of Christianity from the prophecies of the Old and New Testament. The last years of his life were embittered by the decease of an only son, who fell a victim to consumption at the age of nineteen. Bishop Warburton died at Gloucester, June 7, 1779, and was interred in the cathedral church, where a monument was erected to his memory. His works were collected and published by his friend bishop Hurd, in 1788 (6 vols., 4to.); and a biographical memoir, forming a seventh volume, appeared several years after. Doctor Johnson, in his Life of Pope, says of Warburton, "He was a man of vigorous faculties, a mind fervid and vehement, supplied, by incessant and unlimited inquiry, with wonderful extent and variety of knowledge, which yet had not oppressed his imagination, nor clouded his perspicuity. To every work he brought a memory full fraught, together with a fancy fertile of original combinations, and at once exerted the powers of the scholar, the reasoner and the wit. But his knowledge was too multifarious to be always exact, and his pursuits were too eager to be always cautious. His abilities gave him a haughty consequence, which he disdained to correct or mollify; and his impatience of opposition disposed him to treat his adversaries with such contemptuous superiority as made his readers commonly his enemies, and excited against the advocate some who favored the cause. He seems to have adopted the Roman emperor's determination, *Oderint dum metuant*. He used no allurements of gentle language, but wished to compel rather than to persuade. His style is copious without selection, and forcible without neatness; he took the words that presented themselves; his diction is coarse and impure, and his sentences are unmeasured."

Ward, Artemas, the first major-general in the American army, graduated at Harvard college, in 1748. For several years, he was an active and useful member of the general court, and, in 1774, one of the provincial congress. He served in the war previous to the peace of Paris, and, when the revolutionary struggle commenced, he was appointed major-general, and was even thought of as generalissimo. He commanded the troops at Cambridge until the arrival of Washington, when he was placed at the head of the right wing at Roxbury. His firmness and intrepidity were strikingly displayed on various trying occasions. In April, 1776, he resigned his commission, though, at the request of Washington, he continued for some time longer in command. He was afterwards chosen one of the council of Massachusetts, where he was distinguished for his integrity and independence of spirit. In 1786, he was speaker of the house of representatives, and chief justice of the court of common pleas for the county of Worcester. On the organization of the general government, he was elected to congress. He died at Shrewsbury, Oct. 28, 1800, aged seventy-three years, after a long decline.

Wareham; a market-town and borough of England, in Dorsetshire, near the mouth of the Frome. By the reform act of 1832, it was deprived of one of its members of parliament. Population, 2325.

Warendorf, on the Ems; a Prussian town in the government of Münster, and province of Westphalia, with 4200 inhabitants. Above 16,000 pieces of linen (or 960,000 ells) are woven by the peasants of the environs, in winter, when they cannot work in the fields.

Warham, William, an English prelate and statesman of the sixteenth century, was a native of Hampshire, and was educated at Winchester school and Oxford, where he obtained a fellowship in 1475. He subsequently practised as an advocate in the court of arches, and, after an embassy to Burgundy, was appointed chancellor of Wells, and master of the rolls. Henry VII at length raised him to the dignity of lord chancellor; and he successively became bishop of London, and archbishop of Canterbury. He was one of the early patrons of Wolsey, whose influence, under Henry VIII, gave umbrage to Warham; and, in 1515, he resigned the great seal, and at length withdrew his attention from affairs of state. He died in 1532. This prelate was an encourager of learning, and was the friend and patron of the celebrated Erasmus.

Warmbrunn (also called *Warmbad*); a watering place in Silesia, a league from Hirschberg, 1077 feet above the sea, in a romantic situation. It contains 1900 inhabitants. The warm springs are much resorted to for the cure of gout, rheumatism, obstructions, cutaneous eruptions, &c. The environs are romantic.

Warnefridus. (See *Paul the Deacon.*)

Warp, in manufactures, is the threads, whether of silk, woollen, hemp, &c., that are extended lengthwise on the weaver's loom, and across which the workman, by means of his shuttle, passes the threads of the woof, to form a cloth, riband, fustian, or other stuff.

Warp; a rope or hawser, employed occasionally to remove a ship from one place to another, in a port, road or river. Hence *to warp* is to change the situation of a ship, by pulling her from one part of a harbor, &c., to some other, by means of warps which are attached to buoys, to other ships, to anchors sunk in the bottom, or to certain stations upon the shore, as posts, rings, trees, &c.

Warren, sir Peter, an English admiral, distinguished for his professional talents and his private virtues, was descended from an ancient family in Ireland, and received an education suitable to the employment for which he was destined. Having entered young into the navy, he gradually rose to the rank of commodore, which he held in 1745, when he was appointed commander of an armament destined for the attack of Louisburg, North America, then belonging to the French. He was joined by the fleet of transports from Boston, containing the New England troops under sir W. Pepperell (q. v.), in Canso bay, on the 25th of April; and the combined forces took possession of Louisburg on the 17th of June. The French considered the loss of this place of so much importance, that, in 1747, they fitted out a powerful fleet for the purpose of retaking it; and, at the same time, another squadron was sent to the East Indies. The views of the French government were rendered abortive by the courage and activity of admiral Anson and sir Peter Warren. The latter, who had been made a rear-admiral, with a large fleet, fell in with the French squadron, completely defeated them, and captured the greater part of their men-of-war. Peace being concluded the succeeding year, he was elected member of parliament for Westminster. He died in 1752.

Warren, Joseph, a major-general in the American army, was born at Roxbury, Massachusetts, in 1740. He graduated, in 1759, at Harvard university, where he bore the reputation of great talents, accomplishments, courage, generosity and independence of spirit. After leaving college, he studied medicine, and rose, in a few years, to eminence among the physicians of Boston. He soon became conspicuous as a politician; and his pen was constantly employed in defending the rights of his country, from the year in which the stamp act was passed, until the commencement of the revolutionary war. From the year 1768, he was a principal member of the secret meeting or caucus in Boston, which exercised great influence on the concerns of the country; and in the plans of defence which he helped to mature in this assembly, and which were made known after the destruction of the tea, he evinced great circumspection and wisdom, notwithstanding the boldness and ardor of his character. He was twice selected to deliver the oration on the anniversary of the Boston massacre, on which occasion he manifested his characteristic warmth and energy. On the evening before the affair of Lexington, he obtained intelligence of the intended expedition against Concord, and, at ten o'clock in the night, despatched an express to Hancock and Adams, then in the former town, to warn them of their danger. In the battle itself he was very active, and is said to have lost a part of his ear-lock by a ball. His influence was of great use in preserving order among the troops confusedly assembled at Cambridge. When Hancock repaired to the congress at Philadelphia, he was chosen his successor in the presidentship of the provincial congress; and four days previous to the affair of Bunker's hill, he received the commission of major-general. On the day of that memorable engagement, he joined the men within the lines, to encourage them, as a volunteer; and just as the retreat commenced, he was struck by a ball on the head, which terminated his career in the trenches. He was thirty-five years of age at the period of his death, and was the first victim of rank in the struggle between the two countries. In the spring of 1776, his bones were disinterred and entombed in Boston, on which occasion an eloquent funeral eulogy was pronounced by a member of the society of masons, of which he had been grand master in America. General Warren possessed a clear and vigorous understanding, and a humane and generous disposition. His qualities of head and heart, accompanied, as they were, by manners affable and winning, caused him to be almost idolized by the army and his friends. He published an oration in 1772, and another in 1775, commemorative of the 5th of March, 1770. Within a year after his death, congress passed resolutions to erect a monument to his memory, in Boston, with a suitable inscription (which, however, has not yet been done), and to educate his eldest son at the expense of the U. States. In 1780, this body further resolved to recommend to the executive of Massachusetts, to make provision for the maintenance and education of his three youngest children, and to defray the expense, to the amount of the half-pay of a major-general.

Warrington; a thriving town of England, in Lancashire, on the Mersey; population, 16,018; eighteen miles east of Liverpool. By the reform act of 1832, it was constituted a borough, returning one member to parliament.

Warsaw (Polish *Warszawa*; called by the Germans *Warschau*, and by the French *Varsovie*); capital of the late kingdom, formerly capital of the whole country of Poland, on the west bank of the Vistula, 300 miles east of Berlin; lon. 20° 3′ E.; lat. 52° 14′ N. The population, which, in 1830, was 140,000, is now reduced to about 60,000. Warsaw has a pleasant situation, not very elevated, yet sufficiently so to be secure against the overflowings of the Vistula. It is an open town, having neither gates nor walls, but is enclosed with lines. It covers a great extent of ground, being between three and four miles long, including its four suburbs, and between two and three broad; but this extent includes large spaces occupied by gardens. The city, formerly but little better than a collection of cottages, received considerable improvements from its Saxon sovereigns of the last century. Still it was an irregular and unpleasant place, exhibiting a singular contrast of ostentation and poverty, having, in a few quarters, mansions of such splendor as to be entitled to the name of palaces; in others, a succession of miserable hovels. The streets were formerly wholly without pavements, and exceedingly filthy; but several of them have been paved, kept clean, and well lighted. The town is divided into old and new, exclusive of the four suburbs, one of which, Praga (q. v.), lies on the east bank of the river. The old town, with the exception of a few public edifices, is miserably built; but there is a greater proportion of good houses in the new town and suburbs. The largest edifice is the palace of the kings of the house of Saxony, the residence of the viceroy, who represents the emperor of Russia. The city was in an improving state, and increasing in population and trade, previously to the insurrection of 1830. It then contained thirty-nine churches, six hospitals, a military academy, a gymnasium, a lyceum, and a university, founded in 1816, consisting of five faculties, theology, jurisprudence, political economy, philosophy, and the fine arts, with a library of 150,000 volumes, among which were 15,000 Polish works, 7000 *incunabula*, and 1260 manuscripts. Its situation, for an inland town, is favorable for trade. The Vistula is navigable to a great extent, upwards as well as downwards. It has manufactures of woollen stuffs, soap, tobacco, gold and silver wire, carriages, harness, and carpets. Since 1817, two great annual fairs have been established. In 1566, the diet of Poland was transferred from Cracow, the old capital of Poland, to Warsaw. (For an account of the insurrection of 1830, and the war which followed, see *Poland*, and *Russia*.) Warsaw was captured by Paskiewitch, September 7, 1831, after two days' fighting. The scenes of horror exhibited there need not be detailed. Russia is at present erecting a citadel at Warsaw, to overawe the country for the future, the cost of erecting which (20,000,000 florins) is to be extorted from the unhappy citizens.

Wart (*verruca*); a thickening or induration of the cuticle. These little tumors form most commonly on the face and hands, and either drop off spontaneously or may be removed by the application of caustics.

Wartburg; an ancient mountain castle, half a league from Eisenach, belonging to the grand duke of Saxe-Weimar. It was built between 1069 and 1072, was the residence of the landgraves of Thuringia, and famous for its tournaments, especially in the first half of the thirteenth century. The elector Frederic the Wise, of Saxony, caused Luther, who had been outlawed by the diet of Worms, to be carried thither, where he lived from May 4, 1521, to March 6, 1522, engaged in the translation of the Bible. The room in which he labored is yet seen. The disorderly conduct of Carlstadt induced him to leave this place. (See *Carlstadt*, and *Luther*. For the meeting of the German students here, October 18, 1817, see *Eisenach*.)—The *War of the Wartburg*, one of the earliest dramatic poems, or dialogues in verse, in the German language, grew out of a poetical contest which took place about 1207, between six of the most distinguished German poets—Henry the Clerk (Henry von Rispach), Walther von der Vogelweide, Wolfram von Eschenbach, Bitterolf, Henry von Ofterdingen and Reimer von Zweten or Zwetzen, assembled at the Wartburg, under the protection of the landgrave. This poem exists, in two manuscripts, in the Manesse (q. v.) collection, and in the Jena manuscript of the *Minnesingers* (q. v.); from which Zeune printed it in 1808. Opinions differ respecting the writer.

Wartenburg, Battle of, October 3, 1813. Wartenburg is a small place on the left bank of the Elbe. Blücher having resolved to give a turn to the war, by transferring the scene of conflict to the left bank of the Elbe, left his camp at Bautzen, September 26, and made a memorable march to the Elbe. The river was wide and rapid, and the pontons were thrown over it in the midst of the fire of the enemy. The Prussians were 24,000 strong; the French corps, under Bertrand, who opposed them, 20,000. The French were defeated with much loss.

Warton, Joseph, son of the reverend Thomas Warton, professor of poetry at Oxford, was born in 1722, at Dunsfold in Surrey. At the age of fourteen, he entered on the foundation of Winchester school, and, in 1740, at Oriel college, Oxford. He left the university after taking his first degree, and became curate to his father, afterwards exercising the same office at Chelsea. He was created M. A. by diploma in 1757, and, in 1768, was admitted to the degree of D. D. He published, in 1744, a small volume of Odes, and, in 1748, was presented, by the duke of Bolton, to the rectory of Winslade, Bucks. Soon after, he married. In 1751, he accompanied his patron, the duke of Bolton, to France, as his chaplain, for the purpose of uniting him in the bands of wedlock to his mistress, Miss Fenton, a public singer, on the occurrence of the expected death of the duchess. The chaplain, however, returning to England before that event took place, another clergyman solemnized the nuptials. In 1753, Warton published a new translation of the Eclogues and Georgics of Virgil, accompanied by Pitt's version of the Æneid, with dissertations and notes, and became a contributor to doctor Hawkesworth's Adventurer. In 1754, he was presented to the rectory of Tamworth, and, the following year, was chosen second master of Winchester school. His Essay on the Writings and Genius of Pope first appeared anonymously, in 1756; and, twenty-six years after, he added a second volume, part of which had been printed at the same time with the former. In 1766, he was advanced to the station of head-master at Winchester, where he presided with high reputation nearly thirty years, when he resigned the mastership, and retired to the rectory of Wickham, in Hampshire. In 1797, an edition of the works of Pope, with notes, issued from the press under his superintendence (in 9 vols., 8vo.); and he then undertook an edition of Dryden's works, of which he had prepared only two volumes at the time of his death, which took place at Wickham, in 1800. Memoirs of his Life and Writings were published (in 2 vols., 4to.) by his pupil, doctor Wooll.

Warton, Thomas, brother of the preceding, born at Basingstoke, in 1728, received his education at Winchester school, and Trinity college, Oxford, and, in his twenty-first year, distinguished himself by his Triumph of Isis, a poetical vindication of his *alma mater* against the reflections in Mason's Elegy of Isis. His Progress of Discontent, said to have been composed as a college exercise in 1746, added to his fame. In 1750, he took the degree of M. A., and, the next year, was chosen a fellow of his college. His Observations on Spenser's Fairy Queen, published in 1754, made him advantageously known as a critic, and prepared the way for his election, in 1757, to the professorship of poetry at Oxford, which he filled for ten years with great ability. He was instituted to the living of Kiddington, in Oxfordshire, in 1771, and, several years afterwards, published an account of his parish, under the title of a Specimen of the History of Oxfordshire (1783, 4to.). The first volume of his History of English Poetry was published in 1774, and the second and third, respectively, in 1778 and 1781. His plan was extensive, including the period from the eleventh to the eighteenth century; but the history goes no lower than the reign of Elizabeth, and a few sheets only of a fourth volume were prepared for the press, when he relinquished his undertaking. What he has executed is, however, very well done, exhibiting an extent of research and reading, and a correctness of taste and critical judgment, which render it a subject of regret, that he should have been diverted from completing his design. A new edition of the History of Poetry, with a preliminary essay, and the notes of Ritson, &c., was published in 1824 (4 vols., 8vo.). In 1785, Warton became Camden professor of history at Oxford, and succeeded Whitehead in the office of poet laureate. His last publication was an edition of the smaller poems of Milton, elucidated with curious notes. In his sixty-second year, he was seized with a paroxysm of the gout; and though a journey to Bath removed the complaint, yet it probably laid the foundation for a paralytic attack, which occasioned his death at Oxford, May 21, 1790. He was interred, with academical honors, in the chapel of Trinity college. Among his various literary labors, not already noticed, were an edition of the Greek Anthology (1766); another of Theocritus (1770, 2 vols., 4to.); the Life and Literary Remains of Doctor Ralph Bathurst (1761, 8vo.); Life of Sir T. Pope (1780, 8vo.); and an Inquiry into the Authenticity of the Poems attributed to Rowley (1782, 8vo.). He published a collection of his poetical productions in 1777 (8vo.); and his Poetical Works, with an Account of his Life, by Richard Mant, appeared in 2 vols., 8vo. (Oxford, 1802).

Warwick; a town of England, in the county of the same name, on the Avon. It is of great antiquity, and celebrated for the grandeur of its castle. William the Conqueror considered this castle of great importance, enlarged it, and gave it to the custody of Henry de Newburg, on whom he bestowed the earldom of Warwick. It is, at present, one of the noblest castles remaining in England. The whole of the apartments are elegantly furnished, and adorned with many original paintings. Population, 9109; ninety miles north-west of London.

Warwick, Guy, earl of, an English champion, now celebrated in nursery tales, is supposed to have flourished in the reign of the Saxon king Athelstan. There is a tower belonging to Warwick castle, which still bears the name of this redoubted hero, and a spot called Guy's cliff, where the hermitage, to which he retired after performing the many valorous exploits recorded of him, is said to have stood. In the suburbs of Warwick, a chantry, with a statue, was erected to his memory, in the reign of Henry VI, by Beauchamp, earl of Warwick. In the castle of Warwick are still shown his spear, buckler, spurs and bow, and also the slippers of the beautiful Phillis, for whom he performed all his wondrous achievements. Besides many victories over dragons, wild boars, &c., Guy is said to have decided the fate of the kingdom in single combat with an enormous giant, who stood forth as the champion of the Danes, at Memhill, near the walls of Winchester, when king Athelstan was besieged.—The history of Warwick may be found in old English and French romances.

Warwick, Earl of. (See *Dudley*.)

Wasa, Gustavus. (See *Gustavus I.*)

Wasa, Order of. (See *Sweden*.)

Wash. (See *Brewing*.)

Washes; a large estuary on the eastern coast of England, in the counties of Norfolk and Lincoln. When the tide is full, the whole is under water; but when the tide is out, it is passable by travellers, though not without danger from quicksands.

Washing of Ores. (See *Mining*, vol. viii, p. 504.)

Washington, the capital of the U. States, in the district of Columbia, is situated on the left bank of the Potomac and the right bank of the Anacostia, or Eastern branch. The Tiber, a small stream, runs through the middle of the city; and its waters may be conveyed to the capitol and the president's house. Lat. 38° 32′ 54″ N.; lon. 77° 1′ 48″ W. from Greenwich (on American maps it is often made the first meridian); 436 miles south-west of Boston, 226 of New York, 136 of Philadelphia, 37 of Baltimore; 553 north-east of Charleston, 1260 north-east of New Orleans, and 897 east of St. Louis; 295 miles, by the course of the Potomac, from the Atlantic ocean; population, in 1810, 8208; 1820, 13,247; 1830, 18,827; population of the district, at the last-mentioned period, 39,858, of which 6056 were slaves. The city of Washington became the seat of government in 1800; and it is the residence of the president, and the other chief executive officers of the federal government. The federal congress meets at Washington on the first Monday of December every year, and the supreme court of the U. States holds its annual sittings here, beginning on the second Monday of January. Washington is separated from Georgetown by Rock creek, over which there are several bridges, and from Alexandria by the Potomac, over which is a pile bridge upwards of a mile in length: there are, also, several bridges over the Anacostia. This river has a sufficient depth of water for frigates to ascend, without being lightened, above the navy-yard, which is situated upon it: vessels drawing fourteen feet can come up to Potomac bridge, whence to the mouth of the Tiber, there are nine feet of water at ordinary high tide. A spacious canal unites the Anacostia with the Potomac. The city is well supplied with good water, and is pleasantly situated with a range of heights in the rear, affording many fine sites, and the Potomac, of more than a mile in width, opening towards the south. Near the head of tide-water navigation, and having an easy communication with the ocean, it is connected with a rich back country by the Chesapeake and Ohio canal. Steam-boats ply regularly between Washington and Baltimore, Alexandria, Norfolk and other places; and eight stage-coaches leave daily for Baltimore, besides several in other directions. The city is regularly laid out; but a small part of the ground embraced within the plan is built upon. Streets running north and south, are crossed by others running east and west, whilst those which are called avenues, traverse these rectangular divisions diagonally, and are so laid out as to afford the most direct communication between those places deemed the most important, or which offer the most agreeable prospects. Where the avenues form acute angles by their intersections with the streets, there are reservations which are to remain open. The avenues are named after the states of the Union, and the streets are designated numerically or alphabetically, beginning at the capitol; those running north and south of it being designated by the letters of the alphabet—A north, A south, &c.—and those east and west of it being numbered—as 1st street east, 1st street west, &c. The avenues and streets leading to public places are from 120 to 160 feet wide; the others from 70 to 110 feet. The public buildings are, 1. the capitol, situated on Capitol square, at the head of Pennsylvania avenue. It is of the Corinthian order, constructed of free-stone, and composed of a centre and two wings. The length of the whole is 350 feet; depth of the wings, 121 feet; height to top of dome, 120 feet. A Corinthian portico extends the length of the centre, which is occupied by the rotunda, ninety-six feet in diameter and ninety-six feet in height. The rotunda contains four paintings by Trumbull, and is ornamented with relievos, representing the landing of the pilgrims at Plymouth, the treaty between Penn and the Indians, the preservation of Smith by Pocahontas, and the adventure of Daniel Boone with two Indians. Adjoining this, on the west, is the library of congress. The hall, ninety-two feet in length, thirty-four in width, and thirty-six in height, contains 16,000 volumes. The senate-chamber, in the north wing, is a semicircle of seventy-four feet in length, and forty-two in height. Over the president's chair is a portrait of Washington, by Rembrandt Peale. The representatives' chamber, in the south wing, is also a semicircle, ninety-five feet in length, and sixty in height. The dome is supported by twenty-six columns and pilasters of breccia, or Potomac marble. A colossal statue of liberty, and a statue of history, are the principal embellishments of the hall. Immediately beneath the senate-chamber, and nearly of the same form and dimensions, is the room in which the sessions of the supreme court are held. The president's house is two stories high, with a lofty basement, and 180 feet long by 85 wide. Four brick buildings, two stories high, with freestone basements and Ionic porticoes, contain the offices of the principal executive departments. The general post-office, 200 feet long, contains also the patent-office. The navy-yard, on the Anacostia, with an armory, &c.; the marine barracks, to the north of the navy-yard; an arsenal, public manufactories of arms and military stores, &c., are among the other public establishments. There are also, a city-hall, four market-houses, twenty churches, an orphan asylum, alms-house, &c. Columbia college, which was incorporated by congress in 1821, is situated a little to the north of the city, and has four instructers and about fifty students. There are also two Roman Catholic institutions, which are under the care of the sisters of charity. In August, 1814, Washington was taken by the British, under general Ross, who set fire to the capitol, president's house, and other public offices. The library of congress was burned at this time, and that of Mr. Jefferson was subsequently purchased to replace it.

Washington, a village about seven miles east of Natchez, in Mississippi, is the seat of Jefferson college, which is the first literary institution in that state. It was established in 1802, but, for many years, was not equal to the minor academies of New England. It has lately been converted into a military school, on the plan of that at West Point. The buildings are commodious, and the situation pleasant. It has ten instructers and 160 students.

Washington, George, the third son of Augustine Washington, was born, Feb. 22, 1732, near the banks of the Potomac, in the county of Westmoreland, Virginia. When but ten years old, he was deprived of his father, in consequence of which the care of his improvement devolved exclusively upon his remaining parent, who admirably fulfilled her duty towards him; but, from the limited extent of her fortune, his education was confined to the strictly useful branches of knowledge. In 1743, his elder brother married a connexion of lord Fairfax, the proprietor of the northern neck of Virginia; in consequence of which George was introduced to the acquaintance of that nobleman, who gave him, when in his eighteenth year, an appointment as surveyor in the western part of the territory mentioned. In 1751, his military bent induced him to accept the station of one of the adjutant-generals of Virginia, with the rank of major. Soon afterwards, he was sent, by governor Dinwiddie, on a perilous mission, in consequence of the French troops having taken possession of a tract of country claimed by Virginia, and commenced the erection of a line of posts, to be extended from the lakes to that river. After great toil and danger, he reached the station of the French commander, to whom he delivered the governor's letter; and, having received an answer from him, he returned. As no disposition was indicated to comply with the requisition which had been made, a regiment was raised to maintain the rights of the British crown, and Mr. Washington was appointed its lieutenant-colonel. On the death of the colonel, Mr. Fry, he succeeded to the command, and greatly distinguished himself by his defence of fort Necessity against a very superior French force. He was obliged, at length, to capitulate, but on highly favorable terms; and the legislature of Virginia passed a vote of thanks to him for his conduct on the occasion. In the course of the winter of 1754, orders were received from England for settling the rank of the officers of his majesty's forces; and, those who were commissioned by the king being directed to take rank of the provincial officers, colonel Washington resigned his commission in disgust. He then retired to a country-seat, which he had acquired by the death of his brother, who, having served in the expedition against Carthagena, had named it *mount Vernon*, in honor of the admiral who commanded the fleet in that enterprise. He did not, however, remain long in private life. In the spring of 1755, he was invited, by general Braddock, to enter his family as a volunteer aid-de-camp, in his expedition to the Ohio. The history of this disastrous expedition, and the admirable conduct of Washington, are too well known to need repetition: had his counsels been followed, the result, in all probability, would have been different. In the battle with the Indians, he had two horses killed under him, and four balls passed through his coat; but, to the astonishment of all, he escaped unhurt, while every other officer on horseback was either killed or wounded. His reputation was now established, and he was immediately appointed to the command of a regiment consisting of sixteen companies, raised by the legislature of Virginia, for the defence of the province, after the intelligence of the defeat of Braddock, and the retreat of Dunbar, had been received. He was also designated, in his commission, as the commander-in-chief of all the forces raised and to be raised in the colony; and, as a still further proof of the public confidence, he was intrusted with the unusual privilege of selecting his field-officers. During the years 1755—1758, he was engaged in protecting the frontier from the incursions of the French and Indians—a duty from which he was at length relieved by the capture of fort Duquesne. After this expulsion of the French from the Ohio, the hostile operations of the Indians ceased, and Virginia was relieved from the dangers with which she had been threatened; and, as the health of colonel Washington had been much impaired by his arduous labors, and his domestic affairs required his attention, he resigned his commission, having established an exactness of discipline in his regiment, which reflected the greatest credit on his military character. He soon afterwards married Mrs. Custis, a young lady to whom he had been long attached, and who, besides a large fortune, possessed great personal attractions and accomplishments of mind. Previously to his resignation, he had taken his seat in the general assembly, of which he had been elected a member by the county of Frederick. For several years after his marriage, the attention of colonel Washington was principally directed to the management of his estate. He continued a most respectable member of the legislature of the province, and took an early and decided part against the claims of supremacy asserted by the British parliament. As hostilities approached, he was chosen by the independent companies formed through the northern parts of Virginia to command them, and was also elected a member of the first congress which met at Philadelphia. Here he was placed on all those committees whose duty it was to make arrangements for defence. When it became necessary to appoint a commander-in-chief, his military character, the solidity of his judgment, the steady firmness of his temper, the dignity of his person and deportment, the confidence inspired by his patriotism and rectitude, and the independence of his fortune, combined to designate him, in the opinion of all, for that important station; and, accordingly, on the fourteenth of June, 1775, he was unanimously chosen "general and commander-in-chief of the armies of the United Colonies, and all the forces now raised or to be raised by them." After expressing his high sense of the honor conferred upon him, his firm determination to exert every power he possessed in the service of his country, and her "glorious cause," and his diffidence of his abilities and experience, and declining all compensation for his services, at the same time avowing an intention to keep an exact account of his expenses, which he should rely on congress to discharge, he proceeded, as soon as the necessary arrangements could be made, to the head-quarters of the American army, then at Cambridge, in the neighborhood of Boston. On arriving there, he bent the whole force of his mind to overcome the great difficulties with which he was obliged to struggle, in consequence of the want of ammunition, clothing and magazines, the deficiency of arms and discipline, and the evils of short enlistments. The history of this campaign before Boston is a history of successive exertions to surmount almost insuperable obstacles, by one who was solicitous, in the extreme, to perform some great and useful achievement, in order to prove himself worthy of his high station. In one of his letters to congress, at this period, he says, "I cannot help acknowledging that I have many disagreeable sensations on account of my situation; for to have the eyes of the whole continent fixed upon me, with anxious expectation of hearing of some great event, and to be restrained in every military operation, for want of the necessary means to carry it on, is not very pleasing, especially as the means used to conceal my weakness from the enemy, conceal it also from our friends, and add to their wonder." This was written in

February, after a council of war had expressed an opinion, chiefly on account of the want of ammunition for the artillery, against the execution of a bold plan which he had formed of crossing the ice, and attacking general Howe, in Boston. He then took possession of the heights of Dorchester, in the persuasion that a general action would ensue, as the position enabled him to annoy the ships in the harbor and the soldiers in the town. The British general, in consequence, was reduced to the alternative of either dislodging the Americans or evacuating the place, and endeavored to accomplish the former; but the troops which were embarked for the purpose, were scattered by a furious storm, and disabled from immediately prosecuting the enterprise. Before they could be again in readiness for the attack, the American works were made so strong, that an attempt upon them was thought unadvisable; and the evacuation could no longer be delayed. It took place on the seventeenth of March, and gave great joy to the United Colonies. Congress passed a vote of thanks to the general and his army, "for their wise and spirited conduct in the siege and acquisition of Boston," and directed a medal of gold to be struck in commemoration of the event. As soon as the British fleet had put to sea, the American army proceeded, by divisions, to New York, where it arrived on the fourteenth of April. Every effort was made by Washington to fortify the city, before the appearance of the enemy. In the beginning of July, the British troops were landed on Staten island, and some efforts were made by lord Howe, who commanded the fleet, to open negotiations for the restoration of peace; but they failed, in consequence of the refusal of the American commander to receive any communication not addressed to him in such a way as to acknowledge his public character. The English commander had directed his letters to "George Washington, esquire," and then to "George Washington, &c., &c., &c.," but declining an unequivocal recognition of his station. The disastrous affair of Long island soon afterwards occurred, on the twenty-seventh of August, in which Washington was obliged to behold the carnage of his troops without being able to assist them. It constrained him to withdraw his forces entirely from the island, which he accomplished on the night of the twenty-eighth, with such secrecy, that all the troops and military stores, with the greater part of the provisions, and all the artillery, except such heavy pieces as could not be drawn through the roads, rendered almost impassable by rains, were carried over in safety. From the commencement of the action, on the morning of the twenty-seventh, until the American forces had passed the East river, on the morning of the twenty-ninth, his exertions and fatigues were unremitted. Throughout that time, he was almost constantly on horseback, and never closed his eyes. The manner in which this operation was performed, greatly enhanced his military reputation and it may justly be ranked among those skilful manœuvres which distinguish a master in the art of war. No ordinary talents, certainly, are requisite to withdraw, without loss, a defeated, dispirited and undisciplined army from the view of an experienced and able enemy, and to transport them in safety across a large river, while watched by a numerous and vigilant fleet. In consequence of the operations of the British general, it soon became indispensable to evacuate New York. This was done on the fifteenth of September, with an inconsiderable loss of men. The strongest point of the position which Washington then took, was at Kingsbridge; but it was soon afterwards deemed necessary to withdraw altogether from York island, and the army moved towards the White Plains. General Howe followed, and the battle of the White Plains ensued, in which a portion of the American forces, occupying a hill on the right of the army, under the command of general Mac Dougal, were driven from their station after an animated engagement. Washington then changed his position for another, and Howe, considering this too strong to be attempted with prudence, retired down the North river, for the purpose of investing fort Washington, on York island. It was taken, and its garrison made prisoners of war; on which the American general retreated into New Jersey. His situation now was gloomy in the extreme. All his efforts to raise the militia had been ineffectual; and no confidence could be entertained of receiving reinforcements from any quarter. But that unyielding firmness, which constituted one of the most valuable and prominent traits of his character, enabled him to bear up against every difficulty. "Undismayed," says Marshall, "by the dangers which surrounded him, he did not, for an instant, relax his exertions, nor omit any thing which could obstruct the progress of the enemy, or improve his own condition. He did not appear to despair of the public safety, but struggled against adverse fortune, with the hope of yet vanquishing the difficulties which surrounded him, and constantly showed himself to his harassed and enfeebled army, with a serene, unembarrassed countenance, betraying no fears in himself, and invigorating and inspiring with confidence the bosoms of others. To this unconquerable firmness, to this perfect self-possession, under the most desperate circumstances, is America, in a great degree, indebted for her independence." In his retreat through New Jersey, Washington was followed by the British army, flushed with victory, highly disciplined, and perfectly equipped, whilst his own troops were dispirited, destitute, and daily decreasing by the expiration of their terms of service. In December, the British general made an attempt to get possession of a number of boats for the transportation of his forces over the Delaware; but, having failed, he went into quarters. Washington, having, about the same time, been joined by some effective reinforcements, meditated a blow on the enemy while distributed in their cantonments, which might retrieve, in a measure, the disastrous posture of American affairs, relieve Philadelphia from immediate danger, and rouse the drooping spirits of his countrymen. He accordingly formed the plan of attacking all the British posts on the Delaware at the same instant; but only that part of it succeeded which was conducted by him in person. It is unnecessary to give the particulars of the successes at Trenton and Princeton. Besides the immediate advantages accruing from them in saving Philadelphia, and recovering New Jersey, the moral effects which they produced in reanimating the spirit of the people, were incalculable. Confidence in the commander-in-chief became universal. Immediately afterwards, congress declared, that, in the then state of things, the very existence of civil liberty depended on the right execution of military powers, to a vigorous direction of which, distant, numerous and deliberative bodies were unequal, and authorized general Washington to raise sixteen additional regiments, conferring upon him, at the same time, for six months, dictatorial power, for the conduct of the war. In the beginning of 1777, Washington caused all his soldiers to be inoculated, as the small-pox had proved more fatal in his camp than the sword of the enemy. During this winter, while the two armies were in their respective quarters, he used every exertion to raise a powerful force for the ensuing campaign; but his efforts were not attended with corresponding success. Not allowing himself to be dispirited, he endeavored to make the most of the means in his hands, which, however, so far from enabling him to carry into effect the offensive operations he had meditated, were unequal even to defensive war. In July, general Howe embarked his forces; and, it having been ascertained that the destination of the fleet was against Philadelphia, Washington moved southward to the Delaware. On the twenty-fifth of August, the British disembarked at the ferry of Elk river, and, on the tenth of September, the battle of Brandywine was fought, in which the Americans were defeated. It opened the way to Philadelphia for the enemy; and, on the twenty-sixth, they entered the city, though not before Washington had made an effort to engage them again on the sixteenth, which was frustrated by a violent rain, that rendered the fire-arms of the Americans unfit for use, and obliged them to retreat, without any thing more than a skirmish between the advanced parties. "From the twenty-fifth of August," says Marshall, "when the British army landed at the head of Elk, until the twenty-sixth of September, when it entered Philadelphia, the campaign had been active, and the duties of the American general uncommonly arduous. The best English writers bestow high encomiums on sir William Howe for his military skill and masterly movements during this period. At Brandywine, especially, Washington is supposed to have been 'outgeneralled, more outgeneralled than in any action of the war.' If all the operations of this trying period be examined, and the means in possession of both be considered, the American chief will appear in no respect inferior to his adversary. With an army decidedly inferior, not only in numbers, but in every military requisite, except courage, in an open country, he employed his enemy near thirty days in advancing about sixty miles. In this time, he fought one general action, and, though defeated, was able to reassemble the same undisciplined, unclothed, and almost unfed, army, and, the fifth day afterwards, again to offer battle. When the armies were separated by a storm, which involved him in the most distressing circumstances, he extricated himself from them, and still maintained a respectable and imposing countenance. The only advantage which he is supposed to have given was at the battle of Brandywine; and that was produced by the contrariety and uncertainty of the intelligence received. In a new army, where military talent has not been well tried, the general is peculiarly exposed to the chance of employing not the best instruments. In a country, too, which is covered with wood, precise information of the numbers composing different columns is to be gained with difficulty." After the occupation of Philadelphia, the British general having divided his force, so as to give Washington a fair opportunity to engage him with advantage, he determined to avail himself of it by surprising the camp which had been formed at Germantown, and attacking both wings, in front and rear, at the same time. He made all his arrangements with his wonted caution and address; and, on the 4th of October, the enterprise was carried into effect, and, for a time, seemed certain of a successful issue; but the darkness of the morning, produced by a fog of uncommon density, introducing confusion into the American troops, Washington was compelled to relinquish his hopes, and to direct his attention to secure the retreat of his men. This he did without loss. Decided approbation was expressed by congress, both of the plan of this enterprise, and of the courage with which it was executed; and their thanks were voted to the general and the army. Having taken all possible measures to cut off the enemy from supplies, Washington took post at White Marsh, where an attempt to surprise him was made by general Howe; but it was disconcerted, intelligence having reached him of the intended stroke. He then distributed his soldiers in winter-quarters at Valley Forge, where their sufferings were excessive in consequence of the intense severity of the season, and their want of most of the necessaries for comfort, and even for existence. Every effort was made by him to improve their condition, and augment their numbers; and, for these ends, he exercised, though with caution, the dictatorial powers intrusted to him by congress. His incessant labors and unyielding patriotism could not, however, save him from the imputations which want of success, even though occasioned by insuperable obstacles, always engenders; and a combination was formed to deprive him of his command, and substitute in his place the victor of Saratoga, general Gates. But to weaken his hold upon the confidence and affection of the great body of the people and the army, was found impossible; and even the troops who had conquered under Gates received the idea of the change with indignation. The machinations of his enemies were frustrated without any efforts on his part, and only did injury to themselves. They made no undue impression on his steady mind, nor did they change one of his measures. His sensibilities were for his country, and not for himself. In June, 1778, the British evacuated Philadelphia, which was rendered a dangerous position for them by the part it was now evident that France was about to take in the war, and the naval force which had been prepared by that power before she declared herself. They retreated upon New York, through Jersey, followed by Washington, who, in opposition to the opinion of a council of general officers, and taking his measures on his own responsibility, brought them to an action on the 24th of the month, at Monmouth, which, though not a decided victory, was yet favorable to the American arms, and productive of great satisfaction to congress and the country. He passed the night in his cloak, in the midst of his soldiers, intending to renew the engagement on the following morning; but, before the return of day, the enemy had marched off in silence, and effected their retreat to New York. Marshall has given an extract from a letter of Lafayette to him respecting this battle, in which he says, "Never was general Washington greater in war than in this action: his presence stopped the retreat, his dispositions fixed the victory. His fine appearance on horseback, his calm courage, roused by the animation produced by the vexation of the morning (*le dépit de la matinée*), gave him the air best calculated to excite enthusiasm." In the year 1779, congress had formed the plan of an invasion of Canada, which was deemed altogether inexpedient by Washington; and, in consequence, he requested a personal interview. This was acceded to; and, on his arrival in Philadelphia, a committee was appointed to confer with him on that particular subject, and on the general state of the army and the country. The result of their conferences was, that the expedition against Canada was abandoned; and every arrangement recommended by the commander-in-chief received the attention to which all his opinions were entitled. From this period to the siege of Yorktown, no incident calling for particular mention occurred in Washington's career. He remained in the neighborhood of New York, watching the enemy, and taking every measure for the welfare of the country, without being able to perform any striking exploit. He had to contend with difficulties the mastering of which required higher qualities than are necessary to gain a brilliant victory. His soldiers could scarcely be kept from perishing with cold and hunger, or from dispersing and living on plunder. They were daily leaving the service: some regiments mutinied; others revolted and marched home; and he could obtain no compliance with his urgent requisitions for recruits. Nothing could be looser and more precarious than the thread by which the army was kept together; and, in any other hands than his, it must inevitably have been broken. But, in spite of every obstacle and disaster, he prevented the enemy from accomplishing any thing material, and adopted such preparatory steps as might enable him to turn to advantage any fortunate incident which might occur. In 1781, he planned, in conjunction with count de Rochambeau, a grand enterprise against New York; but circumstances concurred to induce an alteration in his views, and to direct them to operations in the south. He continued, however, arrangements for the attempt on the city, in order to deceive sir Henry Clinton as to his real intentions, which he did with considerable address. In August, he commenced his movement; and, having taken measures for the transportation of his army down the Chesapeake, he proceeded to Virginia with De Rochambeau and the chevalier de Chatelleux. On the 14th of September, he reached Williamsburg, and had an immediate interview with count de Grasse, the admiral of the French fleet, which was lying in the bay at the time, for the purpose of adjusting a plan of coöperation with regard to the investment of the British in Yorktown, to which they had retired. The siege commenced on the 28th of September; and, on the 19th of October, after severe fighting, lord Cornwallis was reduced to the necessity of surrendering the posts of Yorktown and Gloucester Point, with their garrisons, and the ships in the harbor, with their seamen, to the land and naval forces of America and France. The capture of Cornwallis was generally considered as the finishing stroke of the war; but it produced no disposition in the American commander-in-chief to relax in those exertions which might yet be necessary to secure the great object of the contest. He hastened to Philadelphia to confer with congress respecting the military establishment of the succeeding year. He addressed a circular to all the state sovereignties, pressing the importance of supplies. He promised and made all possible exertions towards expelling the British from New York and Charleston. He felt alarm, and proclaimed increased danger, lest the debates in the British parliament concerning peace should beget supineness in America. During the winter-quarters, when the military situation of affairs in general would have allowed of his absence from camp, he remained there, in order to watch and allay the discontents of the American troops, who supposed themselves ill-treated by congress and the states. After the treaty of peace was signed, those discontents, which he knew at least to be plausible, gave him much trouble and disquietude. He added to his reputation by the manner in which he noticed and counteracted the famous Newburgh letters, and suppressed the mutiny of the Philadelphia line. While, however, he vindicated discipline, and enforced subordination to the civil authorities, he deeply sympathized with the suffering troops, and used every lawful means of procuring redress for their grievances. On the 25th of November, 1783, peace and independence being achieved, the British forces evacuated New York, and Washington made his public entry into that city, attended by a splendid volunteer retinue. On the 4th of December, he took his solemn farewell of the principal officers of the American army, assembled in a hotel at New York. On the 19th of that month, at Annapolis, where congress was then in session, he resigned, in form, to that body the commission which he had so long and gloriously borne, and returned to private life, which he so much loved. After peace was proclaimed, congress unanimously passed a resolution for the erection of an equestrian statue of their general, at the place which should be established for the seat of government. The legislature of Virginia also decreed to him "a statue of the finest marble and best workmanship," with an appropriate inscription. It was placed in the capitol of Virginia. Washington took great interest in the navigation of the Virginia rivers: he exerted himself to procure joint legislative acts of Virginia and Maryland for the improvement of the Potomac. He negotiated with the latter on the part of the former state; and the legislature of Maryland, anxious to bear some testimony to his worth, unanimously passed a bill authorizing the treasurer to subscribe, "for the benefit of general Washington," the same number of shares in each of the navigation companies to be formed, as were to be taken for the state. Washington was embarrassed by this generous and honorable proceeding. In a fine letter of acknowledgment, he declined the large donation for himself, but asked it for some objects of a public nature. The shares were then reserved for the use of a seminary of learning established in the vicinity of James and Potomac rivers. In 1787, the legislature of Virginia unanimously elected him one of their delegates to the convention to be held at Philadelphia for the revisal of the federal system. He finally consented to serve, making a painful sacrifice of his plans and expectations of uninterrupted retirement, in order to assist in "averting the contemptible figure which the American communities were about to make in the annals of mankind, with their separate, independent, jealous state sovereignties." The convention, when assembled at Philadelphia, unanimously chose him for their president; and no member of that august body more decidedly approved the constitution which they gave to the country. All America, as soon as it was adopted, looked to him as the first president under it, with an eye of affectionate confidence and desire which could not be resisted. His reluctance to quit his retreat was extreme. The expression of his feelings on this head, in his private letters, is a striking mixture of genuine diffidence, personal disappointment and elevated patriotism. Neither the animosity of parties, nor the preponderance of the enemies of the new system in some of the states, could deprive him of a single vote for the station of president. From mount Vernon to New York, when congress was in session, the journey of Washington had the character of a triumph. He delivered his inaugural address on the 30th April, 1789, and, throughout his administration, acted up to the principles and promises therein contained. As before in his military capacity, so now in his civil, he declined receiving any thing beyond his actual expenditures, in his official character. We need not repeat the names of the eminent men whom he associated with him, in the arduous business of putting the government into successful operation. The machinery of the system was to be contrived, adapted, set in motion, and gave rise continually to the most important questions to be decided, and a conflict of strong prejudices, keen jealousies, partial interests, and untried theories. Washington was chosen as the man of the nation, the guardian of the universal weal: in no instance did he act or appear otherwise. His incessant application to business impaired his robust constitution. Successive attacks of a severe disease compelled him, in 1790, to retire, for a short time, to mount Vernon. On all points of consequence connected with domestic or foreign affairs, he consulted his able cabinet with much deference, collected their opinions anxiously, and decided only after mature deliberation. The occurrence and progress of the French revolution occasioned that complete division of parties, and those bitter animosities, which engendered the most perplexity and chagrin for Washington, and emboldened or exasperated men to impeach, in the end, even his spirit of impartiality and love of freedom. In the outset, he felt a lively interest in the success of that revolution: he did not hesitate to avow his sympathies and wishes; but when the reign of terror and the order of Jacobins were established, he experienced repugnance and horror, in common with so many other true friends of liberty and humanity throughout the civilized world. In his circular of 1783, he had said, "There is a natural and necessary progression from the extreme of anarchy to the extreme of tyranny; and arbitrary power is most easily established on the ruins of liberty abused to licentiousness;" and, in 1793, he perceived that this maxim was to be verified in the case of France. The result justified the caution with which he avoided an alliance with that power; but, independent of the fatal character of French affairs, he knew that peace was indispensable for the U. States, in the infancy of their national existence and union. The proclamation of neutrality, and his resolute enforcement of it; Jay's treaty with Great Britain; and the general firmness of Washington's opinions and proceedings, sustained by the unequalled favor and authority of his name with the people, saved our young republic from being hurried into a dreadful vortex. The vigor and lenity of Washington's government were exemplified in the manner in which the insurrection in the western parts of Pennsylvania, in 1794, was suppressed: not a drop of blood was shed. At the expiration of eight years, having served two terms, Washington retired from the presidency, though, had he consented to retain the station, there can be no doubt he would have been unanimously reëlected. His valedictory address to the nation is too well known for comment. His last speech to congress was delivered on the 7th of December, 1796. He returned to mount Vernon to enjoy the pleasures of retirement; but he was not left to perfect repose. No sooner had war with France become probable (1798), than all eyes were directed to him as the person to lead the American army. President Adams nominated him to the chief command of all the land forces, and the senate unanimously confirmèd the appointment. He accepted it, asking only not to be called into the field until his presence should be required, and refusing to receive any emoluments annexed to it before he was in a situation to incur expense. The occasion for his services, which was anticipated, did not happen. His devotedness to the cause of his country was not the less appreciated. His public toils were now finished; but the period allowed him for the enjoyment of a private life was short. On Friday, the 13th December, 1799, exposure to rain produced an inflammatory affection of his throat. He expired in the night of Saturday, having been early aware of the certainty of his fate. He manifested an equanimity, in his last moments, suitable to the whole tenor of his life. Funeral honors were paid to him in every part of his country, with the most sincere and impressive manifestations of sorrow. His character is thus drawn by chief justice Marshall: "General Washington was rather above the common size; his frame was robust, and his constitution vigorous, capable of enduring great fatigue, and requiring a considerable degree of exercise for the preservation of his health. His exterior created in the beholder the idea of strength united with manly gracefulness. His manners were rather reserved than free, though they partook nothing of that dryness and sternness which accompany reserve when carried to an extreme; and, on all proper occasions, he could relax sufficiently to show how highly he was gratified by the charms of conversation and the pleasures of society. His person and whole deportment exhibited an unaffected and indescribable dignity, unmingled with haughtiness, of which all who approached him were sensible; and the attachment of those who possessed his friendship, and enjoyed his intimacy, was ardent, but always respectful. His temper was humane, benevolent and conciliatory; but there was a quickness in his sensibility to any thing apparently offensive, which experience had taught him to watch and to correct. In the management of his private affairs, he exhibited an exact, yet liberal economy. His funds were not prodigally wasted on capricious and ill-examined schemes, nor refused to beneficial though costly improvements. They remained, therefore, competent to that expensive establishment which his reputation, added to a hospitable temper, had in some measure imposed upon him, and to those donations which real distress has a right to claim from opulence. He made no pretensions to that vivacity which fascinates, or to that wit which dazzles and frequently imposes on the understanding. More solid than brilliant, judgment rather than genius constituted the most prominent feature of his character. As a military man, he was brave enterprising and cautious. That malignity which has sought to strip him of all the higher qualities of a general, has conceded to him personal courage, and a firmness of resolution which neither dangers nor difficulties could shake. But candor will allow him other great and valuable endowments. If his military course does not abound with splendid achievements, it exhibits a series of judicious measures, adapted to circumstances, which probably saved his country. Placed, without having studied the theory, or been taught in the school of experience the practice of war, at the head of an undisciplined, ill-organized multitude, which was unused to the restraints and unacquainted with the ordinary duties of a camp, without the aid of officers possessing those lights which the commander-in-chief was yet to acquire, it would have been a miracle, indeed, had his conduct been absolutely faultless. But, possessing an energetic and distinguishing mind, on which the lessons of experience were never lost, his errors, if he committed any, were quickly repaired; and those measures which the state of things rendered most advisable were seldom, if ever, neglected. Inferior to his adversary in the numbers, in the equipment, and in the discipline of his troops, it is evidence of real merit, that no great and decisive advantages were ever obtained over him, and the opportunity to strike an important blow never passed away unused. He has been termed the American Fabius; but those who compare his actions with his means, will perceive at least as much of Marcellus as of Fabius in his character. He could not have been more enterprising without endangering the cause he defended, nor have put more to hazard without incurring justly the imputation of rashness. Not relying upon those chances which sometimes give a favorable issue to attempts apparently desperate, his conduct was regulated by calculations made upon the capacities of his army, and the real situation of his country. When called a second time to command the armies of the U. States, a change of circumstances had taken place, and he meditated a corresponding change of conduct. In modelling the army of 1798, he sought for men distinguished for their boldness of execution, not less than for their prudence in council, and contemplated a system of continued attack. 'The enemy,' said the general in his private letters, 'must never be permitted to gain foothold on our shores.' In his civil administration, as in his military career, were exhibited ample and repeated proofs of that practical good sense, of that sound judgment, which is, perhaps, the most rare, and is certainly the most valuable quality of the human mind. Devoting himself to the duties of his station, and pursuing no object distinct from the public good, he was accustomed to contemplate, at a distance, those critical situations in which the U. States might probably be placed, and to digest, before the occasion required action, the line of conduct which it would be proper to observe. Taught to distrust first impressions, he sought to acquire all the information which was attainable, and to hear, without prejudice, all the reasons which could be urged for or against a particular measure. His own judgment was suspended until it became necessary to determine; and his decisions, thus maturely made, were seldom, if ever, to be shaken. His conduct, therefore, was systematic, and the great objects of his administration were steadily pursued. Respecting, as the first magistrate in a free government must ever do, the real and deliberate sentiments of the people, their gusts of passion passed over without ruffling the smooth surface of his mind. Trusting to the reflecting good sense of the nation for approbation and support, he had the magnanimity to pursue its real interests, in opposition to its temporary prejudices; and, though far from being regardless of popular favor, he could never stoop to retain by deserving to lose it. In more instances than one, we find him committing his whole popularity to hazard, and pursuing steadily, in opposition to a torrent, which would have overwhelmed a man of ordinary firmness, that course which had been dictated by a sense of duty. In speculation, he was a real republican, devoted to the constitution of his country, and to that system of equal political rights on which it is founded. But between a balanced republic and a democracy, the difference is like that between order and chaos. Real liberty, he thought, was to be preserved only by preserving the authority of the laws, and maintaining the energy of government. Scarcely did society present two characters, which, in his opinion, less resembled each other, than a patriot and a demagogue. No man has ever appeared upon the theatre of public action whose integrity was more incorruptible, or whose principles were more perfectly free from the contamination of those selfish and unworthy passions which find their nourishment in the conflicts of party. Having no views which required concealment, his real and avowed motives were the same; and his whole correspondence does not furnish a single case from which even an enemy would infer that he was capable, under any circumstances, of stooping to the employment of duplicity. No truth can be uttered with more confidence than that his ends were always upright, and his means always pure. He exhibits the rare example of a politician to whom wiles were absolutely unknown, and whose professions to foreign governments, and to his own countrymen, were always sincere. In him was fully exemplified the real distinction which for ever exists between wisdom and cunning, and the importance as well as truth of the maxim that 'honesty is the best policy.' If Washington possessed ambition, that passion was, in his bosom, so regulated by principles, or controlled by circumstances, that it was neither vicious nor turbulent. Intrigue was never employed as the means of its gratification; nor was personal aggrandizement its object. The various high and important stations to which he was called by the public voice, were unsought by himself; and, in consenting to fill them, he seems rather to have yielded to a general conviction, that the interests of his country would be thereby promoted, than to his particular inclination. Neither the extraordinary partiality of the American people, the extravagant praises which were bestowed upon him, nor the inveterate opposition and malignant calumnies which he experienced, had any visible influence upon his conduct. The cause is to be looked for in the texture of his mind. In him, that innate and unassuming modesty which adulation would have offended, which the voluntary plaudits of millions could not betray into indiscretion, and which never obtruded upon others his claims to superior consideration, was happily blended with a high and correct sense of personal dignity, and with a just consciousness of that respect which is due to station. Without exertion, he could maintain the happy medium between that arrogance which wounds, and that facility which allows the office to be degraded in the person who fills it. It is impossible to contemplate the great events which have occurred in the U. States, under the auspices of Washington, without ascribing them, in some measure, to him. If we ask the causes of the prosperous issue of a war, against the successful termination of which there were so many probabilities; of the good which was produced, and the ill which was avoided, during an administration fated to contend with the strongest prejudices that a combination of circumstances and of passions could produce; of the constant favor of the great mass of his fellow citizens, and of the confidence which, to the last moment of his life, they reposed in him,—the answer, so far as these causes may be found in his character, will furnish a lesson well meriting the attention of those who are candidates for political fame. Endowed by nature with a sound judgment, and an accurate, discriminating mind, he feared not that laborious attention which made him perfectly master of those subjects, in all their relations, on which he was to decide; and this essential quality was guided by an unvarying sense of moral right, which would tolerate the employment only of those means that would bear the most rigid examination; by a fairness of intention which neither sought nor required disguise; and by a purity of virtue which was not only untainted, but unsuspected." —A selection from Washington's papers is preparing for publication, by Mr. Jared Sparks, and the first part may be expected to appear very soon. An account of these papers was published some time since, by Mr. Sparks, in a series of letters addressed to judge Story, from which it appears that it was a habit adopted by general Washington, at an early stage of his life, to preserve copies of all his important letters, as well those of a private as those of a public nature. The transcripts of his revolutionary papers occupy forty-four large folio volumes. Each class of subjects is brought together in a strict chronological order, and a copious index is added to every volume. After the revolution had terminated, and he was settled on his farm, though relieved from public duties, his correspondence continued to be very extensive with eminent persons in this country and in Europe; and from that time till his acceptance of the presidency, his copied letters fill six folio volumes; and, even during the period of his presidency, his habits of industry enabled him to find leisure for preparing seven volumes of recorded letters, besides many others of which press copies were taken, and which are not preserved in books. There are fourteen other volumes, in which are recorded the transactions of the president with congress and the heads of departments, and which consist of letters that passed between him and the secretaries, on special subjects; also opinions, reports and intelligence from the secretaries. Among other records is a private journal kept by him, in which his official acts and intercourse with the departments are daily noted down. His letters remained numerous and important to the end of his life. This great collection shows, in a striking light, the industrious, methodical and careful habits of Washington.

Washington, William Augustine, a distinguished officer in the revolution, was the eldest son of Baily Washington, of Stafford county, Virginia. He was one of the earliest to engage in the struggle of his country with the British government, and was appointed to the command of a company of infantry in the third regiment of the Virginia line. His first essay in arms was at York island, where his conduct elicited warm applause. In the retreat through New Jersey, he was distinguished for the fortitude with which he sustained its difficulties, hardships and dangers. At the surprise of the Hessians, he led the van of one of the assailing columns, and, whilst rushing with his company to the attack, received a severe wound in one of his hands. Soon afterwards, three regiments of light dragoons having been raised, he was appointed a major in one of them, commanded by lieutenant-colonel Baylor. This corps was surprised, in 1778, by a detachment of the enemy, under general Gray, and almost cut to pieces. Washington, however, escaped, and, in the following year, was detached to join the army of general Lincoln, in South Carolina. There he was constantly employed with the light troops

His first rencounter with the enemy took place betwixt Ashley ferry and Rantowle's bridge, in which he drove back the cavalry of the British legion, commanded by lieutenant-colonel Tarleton, and took several prisoners; but, being unsupported by infantry, he gained little advantage from his success. He has been exonerated from all blame in relation to the surprises at Monk's corner and Lanian's ferry, which had nearly caused the annihilation of the American cavalry, as, in both instances, he was acting in a subordinate capacity. Being compelled by these disasters to retire, with the remainder of his corps, to the borders of North Carolina, he solicited from general Gates the aid of his name and authority, to facilitate its restoration and equipment. The refusal of the general was severely punished in the battle of Camden, where the presence of a superior cavalry, led by such a soldier as Washington, might have done much to insure success, or, at least, would have prevented the terrible slaughter which followed the defeat. After this occurrence, lieutenant-colonel Washington was attached, with his cavalry, to the light corps commanded by general Morgan. By an ingenious stratagem, he carried the post at Rugely's, taking a large body of the enemy without firing a shot. Aware of the character of his opponent, Rugely, he fixed a pine log on the front wheels of a wagon, so as to make it look, at a distance, like a field-piece, and threatening immediate destruction if resistance should be attempted: the affrighted colonel begged for quarter, and surrendered at discretion. To the brilliant victory at the Cowpens, he contributed in a high degree, and received a silver medal from congress, in testimony of his gallant conduct. His ardor in this affair had nearly cost him his life. Anxious to animate the pursuit by his example, he was hurried so far in advance as to be surrounded by several officers of the British legion, and was saved only by the bravery of a sergeant and his bugleman, Ball, who, by a pistol-shot, disabled an officer, whose sword was raised for his destruction. After the junction of the two divisions of the American army at Guilford court-house, his cavalry was made a part of a body of horse and foot, selected by general Greene, and placed under colonel Williams. In the retreat into Virginia, and in all the manœuvres subsequent to the recrossing of the Dan, he essentially aided in baffling the skilful efforts of Cornwallis to force Greene to a battle. In the affair at Guilford, he acted a very conspicuous part. By a spirited and judicious charge, he broke the regiment of guards commanded by colonel Steward, who was killed, and, in conjunction with colonel Howard and his Marylanders, nearly effected their entire destruction. Unfortunately, his hat fell from his head, and whilst dismounting to recover it, the officer next in command was so grievously wounded as to be disabled from managing his horse, which, wheeling round, carried him off the field, followed by the rest of the cavalry, who imagined that the movement had been directed. This accident saved the remnant of the guards, and, in all probability, the entire British army. At Hobkirk's hill, he obtained fresh laurels. By skilful manœuvring, he gained the rear of the British army, and captured eleven officers, and upwards of two hundred men. He was only able, however, to bring fifty of them off the field, in consequence of the retreat of the American forces. At the battle of Eutaw, he exhibited signal valor, and made repeated charges on the British light infantry, who maintained their ground with a steadiness worthy of the attack. In a last effort for victory, his horse was killed, and, becoming entangled, as he fell, in the ranks of the enemy, and unable to extricate himself, he was made prisoner. This was the final scene of his military performances. He remained a prisoner in Charleston until the close of the war. He then settled in South Carolina, having married a lady of that state, to whom he had become attached during his captivity. He subsequently served in the legislature, where he gave evidences of capacity for civil service, which induced his friends to endeavor to persuade him to become a candidate for the office of governor; but his modesty caused him to refuse every solicitation to that effect. When general Washington accepted the command of the army, during the presidency of Mr. Adams, he selected his relative to be one of his staff, with the rank of brigadier-general. After a tedious indisposition, he died in 1810. In person, he was tall, and possessed great strength and activity. As a soldier, he was better fitted, perhaps, for the field of battle, than for the planning of military operations. In disposition, he was hospitable, generous and benevolent in the extreme, combining uprightness with kind and courteous manners.

Washington Islands, or **Ingraham Islands**; a group of three islands in the South Pacific ocean, to the north-west of the Marquesas islands, lon. 139° 5′—140° 13′ W.; lat. 7° 50′—9° 30′ S. They were discovered by captain Ingraham, of Boston, in 1791, and visited by captain Roberts, of the same place, in 1792. The latter gave them the name of *Washington*. They are fully described in captain Porter's Journal of a Cruise made to the Pacific Ocean in 1812—14 (New York, 1825, 2 vols.). The principal island of the group is *Nooahiva*, or *Nukahiva*. Stewart also gives an account of these islands, in the first volume of his Visit to the South Seas.

Washington, Mount. (See *White Mountains*.)

Washita (formerly spelled *Ouashitta*) is a river of Arkansas and Louisiana, which rises about intermediate between the river Arkansas and the Red river, in lat. 34° N. The Fourche Caddo, Little Missouri, and Saline, rise at no great distance from the Washita. It runs through a country, in Arkansas, that is generally sterile and mountainous. Pine, and that species of oak called *pin oak*, are the common kinds of timber in that region, and they denote an inferior soil. In the richer and alluvial tracts are found the trees common to that latitude. That beautiful kind called *bois d'arc* is here found in great abundance. In high stages of water, the Washita is navigable for steamboats 600 miles, to the Hot springs. A hundred salines, some of which are highly impregnated with salt, are found near the river. Its bottoms are very fertile after it enters Louisiana. Where it unites itself with Red river, it strikes the eye as the larger of the two. It has a course of nearly 800 miles.

Wasp (*vespa*). The wasps may be readily distinguished by having the upper wings longitudinally folded while at rest. They belong to the order *hymenoptera* of Linnæus, and have a pedunculated abdomen, terminated by a concealed sting. Their larvæ resemble those of the bee, and their history is also similar in most respects. They live altogether in societies, the individuals of which share in common their labors and danger. In general, they construct their habitations with a sort of paper, formed of vegetable fibres, agglutinated by a sort of gum. The cells resemble in form those of honeycomb, and are often disposed in several stories. They feed on animal substances, on meats exposed to the air, dead insects, over-ripe and sugary fruits, fragments of which they cut off with their mandibles, and carry away, for the purpose of feeding their young.

Wassanah; a city of Africa, on a river called Zadi, sixty days' journey south-east of Timbuctoo. According to an account given by Sidi Hamet to Riley, this city appears to contain twice as many inhabitants as Timbuctoo. It is surrounded by a very large wall, built of great stones loosely piled up. A whole day is required to walk around it. The houses are built of stones, without cement, and roofed with reeds and palm leaves. The country around is highly cultivated. The inhabitants are Mohammedans. The account of Sidi Hamet, above quoted, that, after embarking on the Joliba, at Timbuctoo, he found that river to flow six days nearly east, and then to take a south-easterly direction, seems to agree with the statements of the Landers (see *Niger*); but it is not easy to conjecture what was the city described under the name of Wassanah by Sidi Hamet. The king, according to the same authority, lived in a large palace, had 150 wives, 10,000 slaves, and a large army.—See Riley's *Narrative* (New York, 1817).

Waste-Book. (See *Book-Keeping*.)

Wat Tyler, or Walter the Tyler; famous in history as one of the leaders of the revolt of the lower classes in England, in 1381. (See *Richard II*.) It has been suggested that this name was merely assumed, as those of the other leaders of the revolt (Jack Straw, Hob Carter, and Tom Miller) appear to have been, to denote their mean origin, or to conceal their real rank.* The immediate cause of this insurrection is said to have been the insolence of a collector of poll-tax, who, under pretence of ascertaining the age of the tiler's beautiful daughter, offered her intolerable indignities. The tiler, brought into his cottage by the outcry of the girl's mother, felled the tax-gatherer to the ground with a mortal blow. The villeins, and other poor people of Norfolk, Suffolk, Essex, Sussex, were roused by the cry of the men of Kent, in which county lay Dartford, the scene of the occurrence above described, and, declaring there should be no more bondmen, assembled at Blackheath, in May, to the number of 60,000, and took possession of London. Their demands were, the abolition of bondage, the liberty of buying and selling in markets and fairs, a general pardon, and the reduction of the rent of land. At an interview between Tyler and the king, in Smithfield, the former was murdered by some of the attendants of the latter, under pretence that the rebel leader seemed about to seize the king's bridle. The revolt was extinguished with circumstances of great cruelty; more than 1500 wretches perishing by the hand of the hangman. These commotions were not confined to England; and they indicate the growing light of knowledge, which rendered the people impatient of personal slavery, then general (see *Villenage*), and of the chains which a haughty nobility had imposed upon them. Their concurrence with the attempts towards religious reform (see *Wickliffe*) must not be overlooked. "A foolish priest of Kent," says Froissart, "had preached to the peasants that, in the beginning of the world, there were no bondmen. 'Why,' said he, 'should they be kept under, like wild beasts? and why, if they labored, should they have no wages?

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* The case of the celebrated Jack Cade presents a similar instance. His real name was John Aylmere, and he was a physician, as appears from Ellis's Letters Illustrative of English History, second series.

When Adam delved, and Eve span,
Where was then the gentleman?' "—

"Two verses," says Hume, "which, in spite of prejudice, one cannot but regard with some degree of approbation."

Watch and Clock Making. A clock or a watch movement is an assemblage of wheels and pinions, contained in a frame of two brass plates, connected by means of pillars, the first or great wheel of which, in an eight day clock movement, has concentric with it a cylindrical barrel, having a spiral groove cut on it. To this cylinder is attached one end of a cord, which is wrapped round in the groove, for any determined number of turns; and to the other end of the cord is hung a weight, which constitutes a power or force to set the wheels in motion. Their time of continuing in motion will depend on the height through which the weight has to descend, on the number of teeth in the first or great wheel, and on the number of teeth or leaves of the pinion upon which this wheel acts, &c. The wheels in spring clocks, and in watches, are urged on by the force of a spiral spring, contained in a hollow cylindrical barrel, or box, to which one end of a cord or chain is fixed, and lapping it round the barrel for several turns outside: the other end is fixed to the bottom of a solid, shaped like the frustrum of a cone, known by the name of the *fusee*, having a spiral groove cut on it: on the bottom of this cone, or fusee, the first or great wheel is put. The arbor, on which the spring barrel turns, is so fixed in the frame, that it cannot turn when the fusee is winding up: the inner end of the spring hooks on to the barrel arbor, and the outer end hooks to the inside of the barrel. Now, if the fusee is turned round in the proper direction, it will take on the cord or chain, and, consequently, take it off from the barrel. This bends up the spring; and, if the fusee and great wheel are left to themselves, the force exerted by the spring in the barrel to unbend itself, will make the barrel turn in a contrary direction to that by which it was bent up. This force of the spring unbending itself, being communicated to the wheels, will set them in motion, and they will move with considerable velocity. Their time of continuing in motion will depend on the number of turns of the spiral groove on the fusee, the number of teeth in the first or great wheel, and on the number of leaves in the pinion upon which the great wheel acts, &c. The wheels, in any sort of movement, when at liberty, or free to turn, and when impelled by a force, whether it is that of a weight or of a spring, would soon allow this force to terminate; for, as the action of the force is constant from its first commencement, the wheels would be greatly accelerated in their course, and it would be an improper machine to register time or its parts. The necessity of checking this acceleration, and making the wheels move with a uniform motion, gave rise to the invention of the *escapement*, or *'scapement*, as it is commonly called. To effect this, an alternate motion was necessary, which required no small effort of human ingenuity to produce.—The *escapement* is that part of a clock or watch connected with the beats which we hear it give; and these beats are the effects of the moving power, carried forward by means of the wheels in the movement to the last one, which is called the *swing wheel* in a pendulum clock, and the *balance wheel* in a watch. The teeth of this wheel act on the pallets or verge, which are of various shapes, and which form the most essential part in a 'scapement; they drop from each tooth of the swing or balance wheels, on their respective pallets, giving one beat or impulse to the pendulum or balance, in order to keep up or maintain their motion; and, were it not for the pallets, which alternately stop the teeth of the swing or balance wheels, the motive force would have no check. Hence it is, that, by this mechanism of the 'scapement, the wheels in the movement are prevented from having their revolutions accelerated, which would take place to such a degree as to make the machine run down in a minute or two; whereas, from the resistance opposed by the pallets, it is kept going for twenty-four or thirty hours, for a week or a month, or even for twelve months. In the clocks or watches, however, which, as a matter of curiosity, have been made to go so long, it was not possible to have an accurate measure of time. (For the historical matter connected with this subject, see *Clock*.)

Watelet, Claude Henry; a French writer of eminence on the fine arts and the belles-lettres. He held the office of a receiver-general of the finances, was a member of the French academy, and of several foreign learned societies, and died at Paris, in 1786, aged sixty-eight. He published, in 1760, a poem *Sur l'Art de peindre*, and was the author of several other works, the most important of which is the Dictionary of Painting, Sculpture and Engraving, forming part of the *Encyclopédie Méthodique*.

Water. The composition of this fluid has been fully demonstrated both from analysis and synthesis. It is found that when hydrogen gas is burnt (an operation in which oxygen is combined with it), water is formed, and is the only sensible product. This is the proof by synthesis. On the other hand, when water is acted on by substances capable of attracting oxygen, these are oxidated, the water disappears, and hydrogen gas is evolved. The proportions of these elements in water are as follows: one volume of oxygen to two volumes of hydrogen; or, by weight, eight parts oxygen to one of hydrogen. Water is a transparent and colorless liquid, destitute of smell, and nearly without taste. It refracts light powerfully. When its internal movements are prevented, it is a very slow conductor of heat, and an imperfect conductor of electricity. It is almost incompressible, a pressure equal to 2000 atmospheres occasioning a diminution of only one ninth of its bulk. Water being the substance most easily procured in every part of the earth in a state of purity, it has been chosen, by universal consent, to represent the unit of the specific gravity of all solid and liquid bodies. When we say the specific gravity of a body is two, we mean that it weighs twice as much as the same volume of water would do. Now, a cubic foot of water, at the temperature of 60° Fahr., and when the barometer stands at 30 inches, weighs 998.217 avoirdupois ounces, which is only 1.783 ounces less than 1000. Hence, if we know the specific gravity of a body, we have very nearly the weight of a cubic foot of it in avoirdupois ounces. 100 cubic inches of air at 60° Fahr., when the barometer stands at 30 inches, weigh 31.1446 grains. Hence it follows that water, at that temperature and pressure, is 810.734 times heavier than air. Water passes to the solid state at 32° Fahr. When it shoots into ice, it forms, in the first place, a prism, not very regular in shape, but very long. From this primary prism other smaller ones shoot out on both sides, and always at angles of 60° and 120°. Hail is always crystallized in the form of two six-sided pyramids applied base to base. Ice has been observed in crystals having the form of a rhomboid of 120° and 60°. In taking the solid form, water undergoes an enlargement of volume from eight parts to nine; and this expansion even takes place previous to the congelation, during the reduction of temperature for six or eight degrees, the greatest density of water being about 40° Fahr. In the act of freezing, too, the greater part of the air, which the water holds loosely dissolved, is expelled. Electricity is also rendered sensible in its congelation. Water passes into vapor when exposed to the atmosphere at any natural temperature, and even ice evaporates, as is proved by its losing weight when suspended in the air. The transition into vapor is promoted by heat: at 212°, under a medium atmospheric pressure, water boils. (See *Steam*.) Water absorbs the aërial fluids, but in quantities very different, according to the force of attraction which it exerts towards them. Of some of the acid gases it absorbs many times its own volume; of others, the quantity is so inconsiderable as not to be very perceptible, unless ascertained by an apparatus peculiarly adapted to show the result. The quantities absorbed are greater as the temperature is low, down to freezing. They are also augmented by pressure. 100 cubic inches of recently-boiled water, at the mean temperature and pressure, absorb of

Sulphureted hydrogen,	100	cubic inches.
Carbonic acid, ...	100	"
Nitrous oxide, ...	100	"
Olefiant gas, ...	12.5	"
Oxygen, ...	3.7	"
Carbonic oxide, ...	1.56	"
Nitrogen, ...	1.56	"
Hydrogen, ...	1.56	"

All water which has been exposed to the atmosphere (as spring and river water) contains a portion of air, from which it derives a sparkling quality and agreeable taste. It is thus also fitted for supporting the respiration of fishes It appears that the oxygen is absorbed in preference to the nitrogen, and in considerably larger quantity. All the powerful acids exert a strong attraction for water, such as the sulphuric, the nitric, muriatic, fluoric and phosphoric acids. Few of these can even be obtained free from it in an insulated state; and it appears to have an important effect in their more characteristic acid properties. A strong attraction is exerted between water and the fixed alkalies, as also between it and the alkaline earths. The compound salts, also, always contain water, even those of them which appear altogether insoluble. Water, though incapable of combining with the metals, exerts a chemical action upon them, affording to several of them oxygen, at the temperature of ignition, and, at a natural temperature, aided by atmospheric air, oxidating or corroding others: it also combines with some of their oxides. Water is a solvent of many other substances. Few of the animal or vegetable products are insoluble in it, and all of them are affected by it as a chemical agent. Those compounds in which water exists in intimate combination, and the properties of which it appears to modify, are named *hydrates*. It sometimes exists in union, in the proportion of one atom (represented by nine to hydrogen as one); sometimes two atoms (or eighteen parts by weight) are combined, and sometimes even ten atoms. From the extensive solvent power of water, it is scarcely ever met with pure in nature. Every kind of spring or river water is impregnated with saline and earthy bodies of different kinds. Spring water contains carbonate of lime, muriate of lime, and muriate of soda, with a trace of magnesia, and often a little sulphate of potash or soda. River water contains carbonate of lime, muriate of soda, and each of these also sometimes a little alkali. Well water, besides these, contains always a portion of sulphate of lime, the presence of which is the chief cause of the quality termed *hardness* in waters. Rain or snow water is freer from these foreign substances, but is not perfectly pure, as it affords a trace of muriate of soda and muriate of lime. The presence of these different saline and earthy substances is judged of by the following tests, added in the quantity of a few drops of each to an ounce or two of water. A solution of nitrate of barytes produces a turbid appearance from the presence of any sulphate or carbonate, and the turbid appearance of it arising from the latter is removed on adding a drop or two of pure nitric acid. A solution of nitrate of silver gives a bluish precipitate from the presence of any muriate; and if this test is applied after the previous application of nitrate of barytes (care being taken that this last is free from all muriatic acid), it is more certain, as any precipitation from the presence of a sulphate or carbonate is removed. A solution of acetate of lead causes a turbid appearance, if sulphates or carbonates are present; while it produces a less marked effect from the presence of muriates. A solution of oxalate of ammonia detects lime by precipitation; and a solution of soap in alcohol indicates, by the degree of turbid appearance it produces, the predominance of sulphate of lime, or the degree of hardness, as it is called. If a solution of phosphate of soda produce a milkiness after a previous addition of a similar quantity of carbonate of ammonia, magnesia is present. The presence of free carbonic acid is detected by a slight milkiness being produced by the addition of an equal portion of lime water to the water, and with still more delicacy by super-acetate of lead. It is also discovered in the air expelled by boiling, which, on being agitated with lime water, affords a milky precipitate. Water is freed from all foreign substances by distillation.

Waters, Mineral. Under the article *Mineral Waters*, in this work, their definition was given, and a division of them into classes pointed out: a notice also of some of their principal localities was appended. In this place, we shall present some additional information respecting the localities of mineral waters (particularly American), their temperature, chemical constitution, and medicinal qualities. The division of mineral waters above alluded to, was into sulphureous, carbonated, chalybeate and saline. Among the most celebrated waters of the sulphureous class are those of Aix-la-Chapelle, twelve leagues west from Cologne, nine northeast from Liege, and eighty from Paris. Its thermal waters appear to have been known to the Romans; but they owe their modern fame to Charlemagne, who made Aix-la-Chapelle his residence, and occasionally held his levee in the bath, with all his attendants. The temperature of these waters varies, at the different baths, from 110° to 143° Fahr. They contain carbonates of soda, lime and magnesia, muriate and sulphate of soda and silex. The gases are in the following proportions:—

Nitrogen,	51.25
Carbonic acid,	28.26
Sulphureted hydrogen,	20.49
	100.00

Their medicinal qualities have been long well known. They are adapted to all chronic cutaneous disorders, asthmatic affections, chronic rheumatism, dyspepsia, diseases of the uterus, stiffness, weakness and contraction of the limbs from gun-shot wounds. Their use is external and internal. Those waters of the present class existing in the U. States, which are the best known, are the *White Sulphur springs of Virginia.* They are situated in the county of Greenbriar, in a hilly and mountainous region of country, thirty-seven miles in a south-westerly direction from the Hot springs. The water is very cold, and by its taste indicates an abundance of saline matter in its composition. It deposits largely a whitish matter, consisting chiefly of sulphur. These waters, besides proving efficacious in those diseases enumerated above, have been much resorted to by invalids suffering from the slow fever, following remittent, bilious, or ill-cured intermittent fevers. Under the present class must be mentioned the *Salt Sulphur spring* in Monroe county, and the *Red Sulphur spring* in Giles county, Virginia. The last mentioned enjoys much celebrity in cases of pulmonary consumption in all its stages. (See *Virginia.*) Numerous springs of the sulphureous class occur throughout the longitudinal range of Tennessee from west to east, from Nashville on to the Virginia line. In Kentucky, also, the *Olympian springs,* situated fifty miles east of Lexington, among the western ranges of the Alleghany mountains, are deserving of mention; likewise the Blue Licks, which occur on the banks of the Licking river, forty miles north-east of Lexington, on the main road from that place to Maysville. The carbonated waters, whose characteristic is the predominance of carbonic acid, are both cold and thermal. Their medical use is most advantageously displayed in allaying the thirst and heat of feverish action which accompany a disturbed state of the stomach, and inflammation of the liver and other viscera, and in subduing irritation of the kidneys, and checking copious discharges. The two most celebrated thermal acidulous springs in France are those at Mont d'Or and of Vichi. The former were known to the Romans. There are four principal springs at Mont d'Or, the temperature of three of which are decidedly thermal, and stand respectively at 107°, 109° and 113° Fahr.; while the fourth is of the low temperature of 52° Fahr. An analysis of one of these springs gives,

Free carbonic acid,	130	grs.
Carbonate of soda,	189	"
Sulphate of soda,	57	"
Muriate of soda,	145	"
Alumine,	62	"
Carbonate of lime,	116	"
Oxide of iron,	11	"
Carbonate of magnesia,	38	"
Total,	748	

There are seven springs at Vichi, ranging in temperature from 72° to 112° Fahr. The proportions of the saline ingredients vary in each. All contain, however, carbonic acid, carbonates of lime, magnesia, soda, sulphate of soda and muriate of soda. Of the cold carbonated waters, those of *Seltz,* situated on the Rhine, nine leagues north-east of Strasburg, are the most celebrated. The artificial Seltz water is made as follows:—

Water,	20 oz.
Carbonic acid,	5 times the volume.
Carbonate of soda,	4 grs.
Muriate of soda,	22 "
Carbonate of magnesia,	2 "

The best example of this class afforded by the U. States is found in the Sweet springs, Monroe county, Virginia. The springs rise on the north side of a large mountain. Their temperature is 73° Fahr. The name is calculated to convey an erroneous impression of their taste, which is not sweet, but like a solution of a small quantity of a calcareous or magnesian carbonate: the excess of carbonic acid gives, however, the waters a briskness productive of a very different effect on the palate from what an imperfect mixture of the earths would produce. Chalybeate waters owe their characteristic properties, both chemical and medicinal, to an impregnation of iron, in the state of an oxide, which is held in solution by carbonic acid. They are limpid, inodorous, and have a peculiar styptic taste. Exposed to the air, they become covered with an iridescent pellicle, and a quantity of ochrey matter subsides, the water at the same time losing its taste.

The effects of waters of this class are modified by the quantity of carbonic acid in excess, and of saline ingredients. One of the purest of the class is that of Tunbridge, in England. The waters of Tunbridge Wells are not strong, however, with saline or ferruginous ingredients, one gallon containing only seven and a half grains. They are found particularly useful in dyspepsia, uterine debility, cutaneous complaints and gravel. The most noted chalybeates in Europe are the Spa, in the kingdom of Belgium, and Pyrmont, in Westphalia. Spa is a small town, situated in a mountainous district, which forms part of the forest of Ardennes. It is ten leagues from Aix-la-Chapelle, six from Liege, and seventy-five from Paris. The edifices and places of public amusement are on a magnificent scale. There are seven springs, of which number that of Pouhon is the principal. It contains, according to Bergmann, in one hundred pounds of the water,

Crystallized carbonate of soda,	154	grs.
Muriate of soda, ...	18	"
Carbonate of iron, ...	59	"
Carbonate of lime, ...	154	"
Carbonate of magnesia, ...	363	"
	748	

A hundred cubic inches of the water contain forty-five cubic inches of carbonic acid gas. The action of these waters is tonic, aperient and cooling; they strengthen muscular action, and are efficacious in diseases proceeding from weakness and relaxation of the tissues. Pyrmont is situated near the river Weser, four leagues from Hamelet, in Westphalia. It has six principal springs, all of the temperature of 55° Fahr. The Pyrmont springs contain, in one hundred pounds of the water,

Crystallized muriate of soda,	122	grs.
Muriate of magnesia, ...	134	"
Crystallized sulphate of soda,	547	"
Carbonate of iron, ...	105½	"
Carbonate of lime, ...	348¾	"
Carbonate of magnesia, . . .	339	"
Resinous principles, ...	9	"
	1605¼	

One hundred pounds of this water contain fifteen hundred grains of carbonic acid. It is said to be eminently tonic. In the U. States there are a great number of chalybeate springs; the most noted of which are those of Ballston. Indeed, the waters of Saratoga might be included within this class, since they contain more or less carbonate of iron; but we shall prefer, in consequence of their preponderance in saline ingredients, to treat of them under the saline class. The springs of Ballston are numerous, and present some differences in the nature and proportion of their saline ingredients. The water of the *Sans Souci spring* is sparkling and acidulous, and its taste highly chalybeate and somewhat saline. Its temperature is 50° Fahr. One gallon of the water is stated by doctor Steel to contain

Muriate of soda, ...	143.733	grs.
Bi-carbonate of soda, . . .	12.660	"
Bi-carbonate of magnesia,	39.100	"
Carbonate of lime, ...	43.407	"
Carbonate of iron, ...	5.950	"
Hydriodate of soda, ...	1.300	"
Silex, ...	1.000	"
	247.150	

These waters, if drunk in large quantities, or taken by persons whose stomachs are rather irritable, operate as an aperient, and at the same time, have a powerful effect as a diuretic, and are of eminent service in all those chronic affections in which chalybeate medicines are employed. The following springs at Saratoga, viz. the Flat Rock, Columbian, High Rock, and Ellis's springs, differ but little, except in containing an excess of carbonic acid, from the Ballston Spa. Next to the springs just mentioned deserves to be noticed the *Bedford springs*, in Pennsylvania. They are situated in Bedford county, 195 miles from Philadelphia, and 93½ from Pittsburgh. One gallon of the water contains, according to doctor Church,

Sulphate of magnesia, ...	80	grs.
Sulphate of lime, ...	14½	"
Muriate of soda, ...	10	"
Muriate of lime, ...	3	"
Carbonate of iron, ...	5	"
Carbonate of lime, ...	8	"
	120½	

Carbonic acid gas, seventy-four cubic inches. Temperature of the water, 55° Fahr. It contains less free carbonic acid than the New York springs, and on this account is less immediately exhilarating; but it is also less stimulating, and not so liable to affect the head as the latter. As a saline chalybeate, it contains less common salt than these, but has, in return, a decided impregnation with Epsom salt, by which it is better fitted to act on the kidneys and bowels, and with less heat and irritation. Within a moderate day's ride of Bedford, at Bath, in Berkeley county, Virginia, occurs another chalybeate of some celebrity: also within four miles of Pittsburgh, there exists a spring of this class, though it emits an odor of sulphureted hydrogen. The *York springs*, in Pennsylvania, 106 miles from Philadelphia, the Yellow springs, and the Brandywine springs, have hitherto attracted many visitors, especially from Philadelphia and Baltimore. The most noted chalybeate in Ohio is the *Yellow spring*, in Green county, sixty-four miles from Cincinnati, and two from the falls of the Little Miami. It is a copious vein, which bursts from a fissure in the silicious limestone rock, and is, at the distance of a few rods, precipitated into a ravine more than 100 feet deep. The water is transparent, and has the temperature of 52° Fahr. It deposits, as it runs, a copious precipitate of oxide of iron. Its taste is that of a slight chalybeate; and the examinations which have been made, indicate it to contain a portion of oxide of iron and carbonate of lime, dissolved by the agency of carbonic acid gas. It has been used with advantage in cases of chronic disease and debility.—Under the saline class are comprised those mineral waters in which there are neutral salts enough to produce a marked, and generally purgative operation. The salts most usually present are the sulphates, muriates and carbonates; such as the sulphates of magnesia and soda, muriates and carbonates of soda and lime. The proportion of gaseous matter is seldom large. When there is a considerable addition of carbonic acid in these waters, they become more grateful to the taste, and sit easier on the stomach. With an impregnation of iron, they acquire tonic and stimulating powers, and are used with other views than merely to their purgative operation. Of the thermal saline waters, the most celebrated are those of *Plombières*, *Bourbon-Lancy*, in France; of *Carlsbad* and *Teplitz*, in Germany; of *Lucca* and *St. Julian*, in Italy. Plombières, in the department of the Vosges, ninety leagues from Paris, owes its conveniences to Stanislaus, king of Poland. The temperature of its springs varies from 90° to 144° Fahr. A pint of the water contains

Carbonate of soda, ...	2⅙	grains.
Sulphate of soda, ...	2⅓	"
Muriate of soda, ...	1¼	"
Silex, ...	1⅓	"
Carbonate of lime, ...	⅓	grain.
Animal matter, ...	1⅓	"

The waters of Bourbon-Lancy are celebrated in the annals of France, as the means by which Catharine de Medicis, wife of Henry II, was cured of her sterility. She made use of them, agreeably to the advice of her physician, Fernel, as drink, and by way of bath. She had, after this visit, in due time and series, her three children, Henry, Charles and Francis, all three kings of France in succession. From gratitude to her physician, she presented him, on the birth of each son, 10,000 crowns. The efficacy of these waters is chiefly due to their elevated temperature.—Bohemia abounds in mineral waters. The most distinguished are those of Carlsbad. The most important of the springs at this place arises with great vehemence, and in a most copious stream, intolerably hot to the touch, and boiling up with violence. Its temperature is invariably 165° Fahr. The analysis of Berzelius shows the water of this spring to contain

Sulphate of soda, ...	2.58714
Carbonate of soda, ...	1.25200
Muriate of soda, ...	1.04893
Carbonate of lime, ...	0.31219
Fluate of lime, ...	0.00331
Phosphate of lime, ...	0.00019
Carbonate of strontites, ...	0.00097
Carbonate of magnesia, ...	0.18221
Phosphate of alumine, ...	0.00034
Carbonate of manganese, . . .	a trace.
Silex, ...	0.07504
	5.46232

The Teplitz waters, though less efficacious than those of Carlsbad, enjoy considerable reputation. Their temperature is 117° Fahr. The thermal waters of St. Julian springs contain a large proportion of saline ingredients; and their easy access attracts a large company of Italians and strangers. The thermal saline springs, called the *Warm springs* of North Carolina, deserve a notice in this place. The water is limpid, and gives out freely a gas, which is believed to be nitrogen. It contains muriates of lime and magnesia, sulphates of magnesia and lime. It can be regarded as little else than a diluent, though after several days drinking, it is said to produce a cathartic effect. Chronic rheumatism and paralysis are among the diseases cured by drinking the water, and bathing in it. The most noted cold saline mineral waters in Europe are those of Epsom and Cheltenham, in England, and

Seidlitz and Seidschütz, in Bohemia. At Cheltenham, there are six different springs. A wine gallon of the water contains 480 grains of sulphate of soda, 40 grains of muriate of soda, with some muriate of lime, and muriate and carbonate of magnesia, oxide of iron, carbonic acid and nitrogen. One of the springs has an impregnation of sulphureted hydrogen. Of the Seidlitz waters, a more copious notice must be taken. The strongest of the simple saline springs is that of the village of Seidlitz, in Bohemia, nine miles from Prague. Five pints of its water contain

Resinous matter, ...	3¾	grains.
Carbonate of magnesia, . . .	6¼	"
Sulphate of magnesia, . .	1410	"
Sulphate of soda, ...	341½	"
Sulphate of lime, ...	26	"
Carbonate of lime, ...	19	"
Carbonic acid, ...	6	"

The Seidlitz water is generally converted into a tepid temperature before being drunk. The following is the formula for preparing artificial Seidlitz waters:—

Pure water, . . .	20 ounces.
Carbonic acid, . .	3 times this volume.
Sulphate of magnesia, ...	144 grains.
Muriate of magnesia, ...	18 grains.

The mixtures sold in the shops under the title of *Seidlitz powders* have no resemblance in composition to the real salts of that name. The powders prepared by the apothecary are one set of tartaric acid, the other of the bi-carbonate of soda, which, when added together in solution in water, form a tartrate of soda, with a disengagement of carbonic acid. The *patent Seidlitz powders*, as they are called, consist of two different powders. The one contained in the white paper consists of two drachms of tartarized soda, and two scruples of carbonate of soda; that in the blue paper of thirty-five grains of tartaric acid. Of the saline mineral springs of the U. States, those of Saratoga are by far the most celebrated. The Congress spring is the most distinguished of the Saratoga waters. One gallon from this spring, according to doctor Steel, contains

Muriate of soda, ...	385.0	grains.
Hydriodate of soda, ...	3.5	"
Bi-carbonate of soda, . . .	8.982	"
Bi-carbonate of magnesia,	95.788	"
Carbonate of iron, ...	5.075	"
Silex, ...	1.5	"
Hydrobromate of potash,	a trace.	
	499.845	

Carbonic acid, ...	311	cubic inches.
Atmospheric air, . . .	7	" "
Gaseous contents,	318	" "

The medicinal qualities of this spring have acquired for it a reputation abroad to which no other fountain in the U. States has yet attained; and it is highly probable, from the active ingredients which enter into its composition, that it will continue to retain the ascendency. Such are its rare and peculiar qualities, that, while it operates as an active and efficient medicine, it possesses the properties of an agreeable and delightful beverage; and it is daily sought after and drunk by all classes of people simply to gratify the palate, or to allay the thirst; and although, in this way, it is frequently taken in sufficient quantities to produce its most active effects upon the bowels, it is seldom, if ever, known to be attended with any unpleasant consequences, but is always considered, by those who thus use it, as invigorating and healthy. The *Harodsburg* and *Grenville springs*, of Kentucky, are much resorted to. The water holds in solution the sulphates of magnesia and soda, carbonates of magnesia and iron, and sulphate of iron. In taste, it resembles a weak solution of Epsom salts, with a slight chalybeate impregnation. *Sea-Water* exceeds all others in the extent of its saline impregnation. On an average—for there is a difference, in this respect, in various latitudes—the quantity of saline matter appears to be about one twenty-ninth, of which, from the experiments of Bergmann and Lavoisier, there are about twenty muriate of soda, five muriate of magnesia, three sulphates of magnesia and soda, and one sulphate of lime. An analysis of doctor Murray gives, out of 10,000 parts of water obtained from the frith of Forth, 220.01 parts of common salt, 33.16 sulphate of soda, 42.08 muriate of magnesia, and 7.84 muriate of lime. Sea-water also contains potash and small quantities of hydriodic and hydrobromic acids. Sea-water is used medicinally, either as an aperient or an alterative. The waters of the Dead sea, according to doctor Marcet, contain, in 100 grains,

Sulphate of lime, ...	0.054	grains.
Muriate of soda, ...	10.676	"
Muriate of lime, ...	3.800	"
Muriate of magnesia, . .	10.100	"

WATER CEMENTS. (See *Cements.*)

WATER, HOLY. (See *Holy Water.*)

WATER-CRESS (*sisymbrium nasturtium*); a cruciferous plant, said to be found in all parts of the globe. It grows on the margin of clear streams, or even partly immersed in the water. The stem is decumbent at the base, upright, and somewhat branching above, and a foot or more in length. The leaves are smooth and pinnatifid, with the lobes more or less sinuate on the margin, and the terminal one always largest. The flowers are small and white. The plant is employed in medicine, as an antiscorbutic. Great quantities are also consumed as salad in Paris, and other cities of the north of Europe; and it is now cultivated, to a considerable extent, in many places. In the bed of a clear stream, the plants are inserted in rows in the direction of the current; and all that is necessary is to take up and replant occasionally, to keep them free from mud, or any accumulation of foreign matter, and to see that other plants do not find their way into the plantation. In the U. States, the *cardamine Pennsylvanica* takes the place of the water-cress, resembles it in appearance, grows in like situations, and possesses similar properties; but we are not aware that it is ever employed for the table.

Water-Lily (*nymphæa*); a beautiful genus of aquatic plants, the greatest ornament of our lakes and slow-moving waters. Their roots are large and fleshy, often creeping horizontally at the bottom of the water. The leaves are rounded and heart-shaped, supported on a stalk so long as to permit them to float on the surface. The flowers are large, and contain numerous petals, so as to appear double. In the morning, they raise themselves out of the water to expand, and close again, reposing upon the surface, in the afternoon. In the species which inhabits the U. States, the flowers are brilliant white, sometimes with a tinge of red, and diffuse a most delightful fragrance. The celebrated *lotus* (q. v.) of Egypt (*N. lotus*) has flowers of a pink color, and the margin of the leaves toothed. It grows in vast quantities in the plains of Lower Egypt, near Cairo, at the time they are under water. The roots are oblong, tuberous, as large as an egg, blackish externally, and yellow within, and are eaten cooked in various manners. The seeds are also used in some districts to make a sort of bread. This custom existed in the time of Herodotus and Theophrastus.—The yellow water-lilies are now separated from the genus, under the name of *nuphar*. They are much less ornamental than the preceding, and differ essentially in the form of the flower.

Water-Melon. (See *Melon.*)

Water-Snake. (See *Serpent.*)

Waterford; a city and seaport of Ireland, and chief town of the county of Waterford, on the river Suir. This city employs many vessels in the Newfoundland trade, whence they sail to the West Indies, and return with the productions of these islands. The harbor is deep and spacious, and protected by a fort. The quay, about half a mile long, is considered the most beautiful in Europe. A fine wooden bridge has been erected here, to facilitate communication with the counties of Wexford and Kilkenny. The population of Waterford, including the suburbs, is 28,677, which is some thousands less than it was estimated nearly forty years ago. Ninety-four miles south-west of Dublin. By the reform act of 1832, it is entitled to return two members to the imperial parliament, to which it previously returned but one.

Waterlanders. (See *Anabaptists.*)

Waterloo; a Belgic village, on the road from Charleroi to Brussels, about ten miles from the latter city, at the entrance of the forest of Soignies. A short distance from this village, occurred, June 18, 1815, the memorable battle to which Wellington gave the name of his head-quarters, *Waterloo*; Blücher that of the turning point of the contest, *Belle Alliance*; and the French that of the chief point of their attack, *St. Jean*. After the engagement at Quatre Bras (q. v.), and in consequence of the battle of Ligny, Wellington had retired to the forest of Soignies, and, June 17, occupied an advantageous position on the heights extending from the little town of Braine la Leud to Ohain. Blücher having promised to support him with all his army, he here resolved to risk a battle. The British army was divided into two lines. The right of the first line consisted of the second and fourth English divisions, the third and sixth Hanoverians, and the first corps of Belgians, under lord Hill. The centre was composed of the corps of the prince of Orange, with the Brunswickers and troops of Nassau, having the guards, under general Cocke, on the right, and the division of general Alten on the left. The left wing consisted of the divisions of Picton, Lambert and Kempt. The second line was, in most instances, formed of the troops deemed least worthy of confidence, or which had suffered too severely, in the action of the seventeenth, to be again exposed until necessary. It was placed behind the declivity of the heights to the rear, in order to be sheltered from the cannonade, but sustained much loss from shells, during the action. The cavalry were stationed in the rear, and distributed all along the line, but chiefly posted on the left of the centre, to the east of the Charleroi causeway. The farm-house of La Haye Sainte, in the front of the centre, was garrisoned; but there was not time to prepare it effectually for defence. The villa, gardens and farm-yard of Hougomont formed a strong advanced post towards the centre of the right. The whole British position formed a sort of curve, the centre of which was nearest to the enemy, and the extremities, particularly the right, drawn considerably backward. Napoleon had bivouacked a cannon-shot from the British camp, on the eminence of Belle Alliance. His army consisted of three corps of infantry, two of cavalry, and all the guards. It might contain about 90,000 soldiers.* On the other hand, the combined English and Dutch forces (prince Frederic of the Netherlands having remained at Hall with 19,000 men) amounted to about 60,000 men. According to Gourgaud's account, Napoleon's design was to break the centre of the English, and cut off their retreat, but in all events to separate them from the Prussians. The battle began about noon, June 18, by an attack of the second French battalion on the advanced post of Hougomont. The wood, defended by the troops of Nassau, was taken by the French, but the house, garden and farm-offices were maintained by the English guards. About two o'clock, four columns of French infantry advanced from Belle Alliance, against the British centre. The cavalry supported them, but were repulsed by the British cavalry, while the infantry, who had forced their way to the centre of the British position, were attacked by a brigade brought up from the second line by general Picton, while, at the same time, a brigade of heavy English cavalry charged them in flank. The French columns were broken, with great slaughter, and more than 2000 men made prisoners. About this period, the French made themselves masters of the farm of La Haye Sainte, and retained it for some time, but were at last driven out by shells. Shortly after, a general attack of the French cavalry was made on the squares, chiefly towards the centre of the British right. In spite of the continued fire of thirty pieces of artillery, they compelled the artillery-men to retire within the squares. The cuirassiers continued their onset, and rode up to the squares, in the confidence of sweeping them away before their charge; but they were driven back by the dreadful fire of the British infantry. Enraged at the small success of his exertions, Napoleon now threw his cuirassiers on the English line, between two *chaussées*. They broke through between the squares, but were attacked and defeated by the English and Dutch cavalry. During the battle, several French batteries were stationed only a few hundred paces in front of the English, and did great execution. At five o'clock, the repeated attacks of superior numbers had already weakened the English, and the victory began to incline to the side of the French. At this juncture, the van of the fourth Prussian battalion (which the French thought, at first, to be the corps of Grouchy), under the command of general Bülow, showed itself in front of the forest of Frichemont, on the right flank and the rear of the enemy. The battalion had left Wavre (q. v.) the same morning, and, animated by the presence of prince Blücher, had overcome all the obstacles of the march. The sixth French corps, hitherto stationed as the reserve of the right wing, was immediately opposed to the Prussians, and a bloody fight ensued. It was six o'clock when this took place. Napoleon, meanwhile, when he perceived the attack of the Prussians, instead of diminishing his attacks on the British line, resolved to assail it with all his forces. The second French corps, all the cavalry, and all the guards, therefore, put themselves in motion. Wellington quietly awaited their approach, and, as soon as the dense columns had arrived within a short distance, he opened on them so murderous a fire that they stopped, and were compelled to fire in return. The right wing of the French had also advanced at the same time with the centre, had driven the Nassau soldiers from Papelotte, and attacked the Prussians in Frichemont. This movement destroyed, for a moment, the connexion of the Prussians with the English left wing, and made the situation of affairs, at this juncture, critical. The sudden appearance of the first brigade of the first Prussian battalion, under general Ziethen, decided the battle. Their arrival had been delayed by a necessary change in their march and by the badness of the roads.

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* According to Gourgaud, Napoleon's army amounted to not more than 67,000 men and 240 pieces of artillery. Marshal Grouchy marched, on the seventeenth, upon Wavre, with 35,220 men and 110 pieces of artillery.

These brave soldiers immediately separated the sixth French corps from the rest of the army, and, by means of twenty-four cannon brought to bear on the rear of the enemy, put them to flight. At the same moment, the English cavalry had overthrown and dispersed, after a brave resistance, the infantry stationed at La Haye. These troops became mingled, at Belle Alliance, with those who were pursued by the first Prussian corps; and thus their defeat became complete. The English and Prussians followed hotly, and kept up a continued fire. The disorder of the French now exceeded all that had been hitherto witnessed. Obedience and order had ceased; infantry and cavalry, generals and servants, soldiers and officers, were mingled in wild confusion; every one consulted only his own preservation. All the artillery and baggage were abandoned. The disorder finally increased to an incredible degree, when Planchenoit was taken by the combined exertions of Hiller's brigade and a part of the second battalion. At Belle Alliance, the victorious generals met. Prince Blücher now ordered a pursuit on the part of the Prussians, with all the disposable troops, under general count Gneisenau's personal direction. In Jemappes, which was taken by a sudden attack, the travelling carriage of Napoleon, with his jewels, his plate, and other valuables, as well as many military chests, and the rest of the baggage of the French army, fell into the hands of the conquerors. Upwards of 200 cannon, two eagles, and 6000 prisoners, were the trophies of this victory. The whole French army was dispersed and disabled. The loss in killed and wounded amounted to 35,000. The English army lost, on the eighteenth, in killed, two generals, 173 officers, and 3242 privates, and, including the wounded (among whom were five generals and 803 officers), about 10,580 men. The Dutch lost, on this day, 2000 men. The loss of the Prussian army amounted to 207 officers and 6984 men. Napoleon hastened to Paris. Grouchy, however, returned through Namur (which the allies had not occupied, and where the Prussians attacked him with a loss of 1600 men) to Laon, by the road through Rethel. General Gourgaud, in his *Campagne de* 1815, attributes the loss of the battle to the faults committed by marshal Ney. But the ex-prefect Gamot has justified the marshal by printing the original orders, which did not allow Ney to act otherwise. It is nevertheless true, that Ney caused the cavalry to advance too far. Marchand has also refuted Gourgaud's account. Napoleon himself gives two reasons for the loss of the battle: 1. The non-arrival of Grouchy (but Grouchy did not receive, till seven o'clock on the evening of the eighteenth, the command, given by Napoleon in the forenoon, to join the right wing of the French); 2. the attack of the mounted grenadiers and the reserved cavalry without his command and knowledge. Napoleon, as he says himself, was in great personal danger. When the English, towards the end of the battle, became the assailants, a portion of their cavalry and sharp-shooters came near the place where Napoleon was. He placed himself at the head of a battalion, and resolved to attack and die; but Soult seized his horse's reins, and exclaimed, "They will take you prisoner, sire, and not kill you." He, with generals Drouot, Bertrand and Gourgaud, succeeded in removing the emperor from the field of battle. Napoleon, however, repeatedly exclaimed, both before and after his arrival at St. Helena, "*J'aurais dû mourir à Waterloo.*" A graphic description of the battle has been given by sir Walter Scott, in his Paul's Letters to his Kinsfolk.

Waterloo, Anthony, a painter and engraver of the school, was born in Utrecht (according to some, in Amsterdam), in 1618. His paintings are confined almost entirely to the scenery around Utrecht. Weeninx painted the men and animals in his landscapes. He is said to have died of want in an hospital.

Waterspout. (See *Whirlwind.*)

Waterville; a flourishing post-town in Kennebec county, Maine, on the west side of the river Kennebec, eighteen miles north by east from Augusta. The principal village is finely situated at the head of boat navigation, and has considerable trade. The township is much intersected by streams affording excellent mill seats, and has a fertile soil. Population in 1830, 2216. Here is a college under the direction of the Baptist denomination. It was founded in 1820. It had, in 1831, five instructers, 45 students, a college library of 1800 volumes, and students' libraries, 600 volumes. The commencement is the last Wednesday in July.

Watlingstreet; one of the Roman military roads made in Britain, while in possession of the Romans, running from Dover by St. Alban's, Dunstable, Towcester, Atterston and Shrewsbury, and ending at Cardigan, in Wales.

Watson, Richard; an English prelate, born at the village of Heversham, in Westmoreland, in 1737. His father was a clergyman, and master of a free grammar school, where the son received his early education. In 1754, he became a sizar of Trinity college, Cambridge, where he was distinguished for his intense application to study, and for the singularity of his dress, which consisted of a coarse, mottled Westmoreland coat, and blue yarn stockings. He regularly took his degrees, and became a college tutor, and, in 1760, obtained a fellowship. In 1764, he was elected professor of chemistry, when he first applied himself to the study of that science, and with great success, as appears from the five volumes of Chemical Essays which he subsequently published. On the death of doctor Rutherforth, in 1771, he succeeded him as regius professor of divinity. He early distinguished himself by a display of his political opinions, in a sermon preached before the university, on the anniversary of the revolution, which was printed under the title of the Principles of the Revolution vindicated. This discourse excited a degree of public attention only exceeded by Hoadly's celebrated sermon on the Kingdom of Christ. A short time previous to this exhibition of his politics, doctor Watson appeared as the opponent of Gibbon, to whom he addressed a series of letters, entitled an Apology for Christianity. The patronage of the duke of Rutland was exerted to obtain his promotion to the see of Llandaff, where he succeeded bishop Barrington, in 1782; and he was permitted to hold, at the same time, the archdeaconry of Ely, his professorship, and other ecclesiastical preferments. Shortly after, he addressed to the archbishop of Canterbury a letter containing a project for equalizing the value of church benefices. In 1785, he published a valuable collection of Theological Tracts, selected from various authors, with additions, in 6 vols., 8vo. The following year, he received a large addition to his income by the bequest of a valuable estate from Mr. Luther of Ongar, in Essex, who had been one of his pupils at Cambridge. During the illness of the king, in 1788, bishop Watson, in a speech in the house of lords, strongly defended the right of the prince of Wales to the regency, in opposition to the doctrine maintained by Mr. Pitt. In 1796, the bishop appeared a second time as the defender of revealed religion, in his Apology for the Bible, designed as an answer to Paine's Age of Reason. In 1798, he published an Address to the People of Great Britain, on the danger which threatened that country, from the influence of those principles which had occasioned the revolution in France. Gilbert Wakefield, having published a reply to this address, was prosecuted for sedition, and sentenced to imprisonment; but in the proceedings against him, bishop Watson took no part whatsoever. He always continued to be the advocate for liberality, both in politics and religion; but his fears from the ascendency of French principles were strongly expressed in a publication under the title of the Substance of a Speech intended to have been spoken in the House of Lords, November 22, 1803. The latter part of his life was chiefly spent in retirement at Calgarth park, situated near the lakes of his native county, where he amused himself with making extensive plantations of timber-trees. He died at that place, July 4, 1816. Besides the works already mentioned, he published several papers in the Philosophical Transactions; Sermons, and Theological Essays; and after his death, his autobiographical memoirs were edited by his son.

Watson, Robert, LL. D., a native of St. Andrew's, in Scotland, studied at the university there, and afterwards at Glasgow and Edinburgh, adopted the ecclesiastical profession, and became a preacher. After having delivered lectures on rhetoric and the principles of composition, at Edinburgh, he obtained the professorship of logic at St. Andrew's, to which was added, by royal patent, that of rhetoric and the belles-lettres. On the death of the principal, doctor Watson succeeded him, but died in 1780. He published the History of Philip II of Spain (2 vols., 1777), and undertook the History of Philip III, which, being left imperfect at his death, was completed and published by doctor William Thomson (1783).

Watt, James; a distinguished cultivator of natural philosophy and the kindred arts and sciences, who, especially by his improvements in the steam-engine, has gained a high degree of celebrity. He was the son of a tradesman, and was born in 1736, at Greenock, in Scotland. He was brought up to the occupation of a mathematical instrument maker, and in that capacity became attached to the university of Glasgow, in which he had apartments, where he resided till 1763; at which time, having entered into the married state, he settled in business for himself in the city. In 1764, he conceived the idea of improving the steam-engine; and, having carried it into effect, he acquired so much reputation for knowledge of mechanics, as induced him to adopt the profession of a civil engineer; and he was frequently employed in making surveys for canals and other undertakings. To facilitate his labors, he invented a new micrometer, and likewise a machine for making drawings in perspective. In 1774, he quitted Glasgow to remove to the vicinity of Birmingham, where he entered into partnership with Mr. Boulton, in conjunction with whom he carried on his improvements in the steam-engine, which he brought to a high degree of perfection. (See *Steam*.) Here he became associated with doctor Priestley, and other philosophical experimentalists, and shared in the chemical researches which they prosecuted with so much success. He was admitted a fellow of the royal society, to whose Transactions he contributed an interesting paper, entitled Thoughts on the constituent Parts of Water, and of dephlogisticated Air, with an Account of some Experiments on that Subject; and another, On a new Method of preparing a Test-liquor to show the Presence of Acids and Alkalies in Chemical Mixtures. Mr. Watt was also a fellow of the royal society of Edinburgh; and, in 1806, he received from the university of Glasgow the honorary degree of LL. D., as a tribute to his merit as a successful laborer in the cause of science. Various inventions of great practical utility originated from his ingenuity, among which may be mentioned a polygraph, or copying machine. His death took place August 25, 1819. (See the article *Watt*, in the Supplement to the *Encyclopædia Britannica*.)

Watteau, Antoine; a painter of great merit, talents and industry, born in 1684, at Valenciennes. His parents, whose situation in life was very humble, with difficulty contrived to give him the instructions of a very inferior master in the country, who qualified him for the situation of a scene-painter at the Parisian opera. The genius of Watteau, however, soon carried him beyond that lowly sphere; and at length, without any further assistance, he produced a picture which gained the prize at the academy. The king, whose notice his performance had attracted, settled a pension on him, for the purpose of enabling him to complete his study of the art in Italy. The opportunities he enjoyed at Rome, and the intimate acquaintance he formed with some of the best works of Rubens and Vandyck, whose style he afterwards more especially imitated, rescued him entirely from the disadvantages which his early penury had thrown in his way, and obtained him a great reputation, particularly for his conversational pieces, in which his heads and the attitudes of his figures are highly admired. From Rome he went to England; but the incessant application with which he devoted himself to his easel had already begun to make formidable inroads on a constitution naturally weak; and, although he succeeded in returning to France, he did not long survive, dying at Nogent, in the neighborhood of the capital, in 1721.

Wattel. (See *Vattel*.)

Watts, Isaac, an English non-conformist divine, eminently distinguished for his learning and piety, was born at Southampton, in 1674, and, after being educated there, under a clergyman of the established church, removed, at the age of sixteen, to an academy for dissenters, in London. After pursuing his studies five years with great credit and advantage, he returned to Southampton, and remained two years at home, employed in the further cultivation of his talents. In 1696, he became tutor to the son of sir John Hartopp, at Stoke Newington, near London, and, in 1702, succeeded doctor Isaac Chauncy (to whom he had previously been assistant) as minister of a dissenting congregation in the metropolis. An attack of fever, in 1712, obliged him to relinquish for a time his pastoral duties, when he obtained an asylum at the house of sir T. Abney, a London alderman at Newington; and there he resided during the remainder of his life. His literary reputation was extended by numerous works, not only on subjects immediately connected with his profession, but also on several branches of science and letters; in consequence of which he received diplomas of D. D. from the universities of Aberdeen and Edinburgh, and was generally respected by the friends of learning and virtue of all denominations. He died November 25, 1748. Among his works are Lyric Poems; Psalms and Hymns; Sermons; Philosophical Essays; a Discourse on Education; an Elementary Treatise on Astronomy and Geography; a Brief Scheme of Ontology; Logic, and a valuable supplement to it entitled the Improvement of the Mind; besides theological tracts, and various controversial pieces. (See Johnson's *Lives of the Poets*.)

Wave. The common cause of waves

derives a sparkling quality and agreeable taste. It is thus also fitted for supporting the respiration of fishes It appears that the oxygen is absorbed in preference to the nitrogen, and in considerably larger quantity. All the powerful acids exert a strong attraction for water, such as the sulphuric, the nitric, muriatic, fluoric and phosphoric acids. Few of these can even be obtained free from it in an insulated state; and it appears to have an important effect in their more characteristic acid properties. A strong attraction is exerted between water and the fixed alkalies, as also between it and the alkaline earths. The compound salts, also, always contain water, even those of them which appear altogether insoluble. Water, though incapable of combining with the metals, exerts a chemical action upon them, affording to several of them oxygen, at the temperature of ignition, and, at a natural temperature, aided by atmospheric air, oxidating or corroding others: it also combines with some of their oxides. Water is a solvent of many other substances. Few of the animal or vegetable products are insoluble in it, and all of them are affected by it as a chemical agent. Those compounds in which water exists in intimate combination, and the properties of which it appears to modify, are named *hydrates*. It sometimes exists in union, in the proportion of one atom (represented by nine to hydrogen as one); sometimes two atoms (or eighteen parts by weight) are combined, and sometimes even ten atoms. From the extensive solvent power of water, it is scarcely ever met with pure in nature. Every kind of spring or river water is impregnated with saline and earthy bodies of different kinds. Spring water contains carbonate of lime, muriate of lime, and muriate of soda, with a trace of magnesia, and often a little sulphate of potash or soda. River water contains carbonate of lime, muriate of soda, and each of these also sometimes a little alkali. Well water, besides these, contains always a portion of sulphate of lime, the presence of which is the chief cause of the quality termed *hardness* in waters. Rain or snow water is freer from these foreign substances, but is not perfectly pure, as it affords a trace of muriate of soda and muriate of lime. The presence of these different saline and earthy substances is judged of by the following tests, added in the quantity of a few drops of each to an ounce or two of water. A solution of nitrate of barytes produces a turbid appearance from the presence of any sulphate or carbonate, and the turbid appearance of it arising from the latter is removed on adding a drop or two of pure nitric acid. A solution of nitrate of silver gives a bluish precipitate from the presence of any muriate; and if this test is applied after the previous application of nitrate of barytes (care being taken that this last is free from all muriatic acid), it is more certain, as any precipitation from the presence of a sulphate or carbonate is removed. A solution of acetate of lead causes a turbid appearance, if sulphates or carbonates are present; while it produces a less marked effect from the presence of muriates. A solution of oxalate of ammonia detects lime by precipitation; and a solution of soap in alcohol indicates, by the degree of turbid appearance it produces, the predominance of sulphate of lime, or the degree of hardness, as it is called. If a solution of phosphate of soda produce a milkiness after a previous addition of a similar quantity of carbonate of ammonia, magnesia is present. The presence of free carbonic acid is detected by a slight milkiness being produced by the addition of an equal portion of lime water to the water, and with still more delicacy by super-acetate of lead. It is also discovered in the air expelled by boiling, which, on being agitated with lime water, affords a milky precipitate. Water is freed from all foreign substances by distillation.

Waters, Mineral. Under the article *Mineral Waters*, in this work, their definition was given, and a division of them into classes pointed out: a notice also of some of their principal localities was appended. In this place, we shall present some additional information respecting the localities of mineral waters (particularly American), their temperature, chemical constitution, and medicinal qualities. The division of mineral waters above alluded to, was into sulphureous, carbonated, chalybeate and saline. Among the most celebrated waters of the sulphureous class are those of Aix-la-Chapelle, twelve leagues west from Cologne, nine northeast from Liege, and eighty from Paris. Its thermal waters appear to have been known to the Romans; but they owe their modern fame to Charlemagne, who made Aix-la-Chapelle his residence, and occasionally held his levee in the bath, with all his attendants. The temperature of these waters varies, at the different baths, from 110° to 143° Fahr. They contain carbonates of soda, lime and magnesia, muriate and sulphate of soda and silex. The gases are in the following proportions:—

Nitrogen,	51.25
Carbonic acid,	28.26
Sulphureted hydrogen,	20.49
	100.00

Their medicinal qualities have been long well known. They are adapted to all chronic cutaneous disorders, asthmatic affections, chronic rheumatism, dyspepsia, diseases of the uterus, stiffness, weakness and contraction of the limbs from gun-shot wounds. Their use is external and internal. Those waters of the present class existing in the U. States, which are the best known, are the *White Sulphur springs of Virginia.* They are situated in the county of Greenbriar, in a hilly and mountainous region of country, thirty-seven miles in a south-westerly direction from the Hot springs. The water is very cold, and by its taste indicates an abundance of saline matter in its composition. It deposits largely a whitish matter, consisting chiefly of sulphur. These waters, besides proving efficacious in those diseases enumerated above, have been much resorted to by invalids suffering from the slow fever, following remittent, bilious, or ill-cured intermittent fevers. Under the present class must be mentioned the *Salt Sulphur spring* in Monroe county, and the *Red Sulphur spring* in Giles county, Virginia. The last mentioned enjoys much celebrity in cases of pulmonary consumption in all its stages. (See *Virginia.*) Numerous springs of the sulphureous class occur throughout the longitudinal range of Tennessee from west to east, from Nashville on to the Virginia line. In Kentucky, also, the *Olympian springs*, situated fifty miles east of Lexington, among the western ranges of the Alleghany mountains, are deserving of mention; likewise the Blue Licks, which occur on the banks of the Licking river, forty miles north-east of Lexington, on the main road from that place to Maysville. The carbonated waters, whose characteristic is the predominance of carbonic acid, are both cold and thermal. Their medical use is most advantageously displayed in allaying the thirst and heat of feverish action which accompany a disturbed state of the stomach, and inflammation of the liver and other viscera, and in subduing irritation of the kidneys, and checking copious discharges. The two most celebrated thermal acidulous springs in France are those of Mont d'Or and of Vichi. The former were known to the Romans. There are four principal springs at Mont d'Or, the temperature of three of which are decidedly thermal, and stand respectively at 107°, 109° and 113° Fahr.; while the fourth is of the low temperature of 52° Fahr. An analysis of one of these springs gives,

Free carbonic acid,	130	grs.
Carbonate of soda,	189	"
Sulphate of soda,	57	"
Muriate of soda,	145	"
Alumine,	62	"
Carbonate of lime,	116	"
Oxide of iron,	11	"
Carbonate of magnesia,	38	"
Total,	748	

There are seven springs at Vichi, ranging in temperature from 72° to 112° Fahr. The proportions of the saline ingredients vary in each. All contain, however, carbonic acid, carbonates of lime, magnesia, soda, sulphate of soda and muriate of soda. Of the cold carbonated waters, those of *Seltz*, situated on the Rhine, nine leagues north-east of Strasburg, are the most celebrated. The artificial Seltz water is made as follows:—

Water,	20 oz.
Carbonic acid,	5 times the volume.
Carbonate of soda,	4 grs.
Muriate of soda,	22 "
Carbonate of magnesia,	2 "

The best example of this class afforded by the U. States is found in the Sweet springs, Monroe county, Virginia. The springs rise on the north side of a large mountain. Their temperature is 73° Fahr. The name is calculated to convey an erroneous impression of their taste, which is not sweet, but like a solution of a small quantity of a calcareous or magnesian carbonate: the excess of carbonic acid gives, however, the waters a briskness productive of a very different effect on the palate from what an imperfect mixture of the earths would produce. Chalybeate waters owe their characteristic properties, both chemical and medicinal, to an impregnation of iron, in the state of an oxide, which is held in solution by carbonic acid. They are limpid, inodorous, and have a peculiar styptic taste. Exposed to the air, they become covered with an iridescent pellicle, and a quantity of ochrey matter subsides, the water at the same time losing its taste.

stepped without affecting us disagreeably. In Florence, all parts of the human body are, at present, imitated, in colored wax, for the study of anatomy. More than thirty rooms, in the palace, are filled with these wax preparations; also plants are found there, imitated to deception, in wax. Exact imitations, in wax, of vegetable productions do not produce the same unpleasant emotions as wax images of men and animals, because they have, by nature, a more stationary character. The first idea of forming figures of wax of this kind was conceived by Nones, of Genoa, an hospital physician, in the seventeenth century. He was about to preserve a human body by embalming it; but, not being able to prevent putrefaction entirely, he conceived the idea of having the body imitated, as accurately as possible, in wax. The abbate Zumbo, a Sicilian, who understood nothing of anatomy, but was skilled in working in wax, imitated the head of the body so perfectly, under the direction of Nones, in colored wax, that many who saw it took it to be the real head. Zumbo secretly made another copy, and went with it to France, where he pretended to have invented the art. He soon died. De Nones then had the whole body perfectly copied by a Frenchman named De Lacroix. In 1721, La Courege exhibited similar figures in Hamburg; and, in 1737, others were publicly sold in London. The works of Ercole Lelli, Giovanni Manzolini and his wife, which were formerly preserved in the institute of Bologna, and were thence carried to Paris, were remarkably fine. Beautiful figures in wax, made by Anna Manzolini, are preserved in Turin and Petersburg. She died in 1755. More modern artists in this line, in Italy, are L. Calza, Filippo Balugani, and Ferrini. The celebrated Fontana, in Florence, carried this art to a high degree of excellence. He received so many orders that he employed a large company of anatomists, model-cutters, wax-moulders and painters. Yet he generally confined himself to representations of the intestines. Vogt, in the university of Wittenberg, used, in his lectures, wax preparations, in imitation of the fine branches of vessels. Pinson, and, at a later period, Laumonier, at Rouen, distinguished themselves in this department, in France. The composition for this purpose consists of four parts wax, three parts white turpentine, and some olive-oil or hog's lard, suitably colored. The bulk of the figure is formed with the hands: the finer parts are made with instruments of various forms: some figures are cast. The moulds ought to be of gypsum, and consist of many pieces, covered inside with oil. The wax is poured into a hole at the feet, and the whole is then thrown into cold water, that the wax may be separated the more easily. A composition, of which sculptors form their first models, consists of sixteen parts wax, two parts Burgundy pitch or shoemaker's wax, and one part hog's lard; or of ten parts wax, one turpentine, as much shoemaker's wax, and as much hog's lard. This is melted by a slow fire, and afterwards well stirred and strained, so as to expel all the air. A composition of wax and other substances is very proper for impressions of figures cut in stones. It is prepared thus:—an ounce of virgin wax, melted slowly in a copper vessel, and a drachm of sugar candy pounded well, half an ounce burnt soot, and two or three drops of turpentine. The wax is warmed if a cast is to be taken, and the stone, having been a little moistened, is pressed on it. Gem-cutters use this composition.

Wax-Myrtle, or **Bayberry** (*myrica cerifera*); a low, spreading shrub, common along the coast from Maine to Louisiana. The leaves are lanceolate, with a few indentures towards the extremity, and sprinkled with resinous dots. The bark and leaves, when bruised, emit a delightful fragrance. The berries are as large as a pepper-corn, and, when ripe, are covered with a whitish-green wax, which is collected by boiling them: the fat then melts out, floats at the top of the water, and may be skimmed off. When congealed, it looks like tallow or wax, but has a dirty-green color. It is therefore melted again, and refined, by which means it acquires a fine and pretty transparent green color. It is dearer than common tallow, but cheaper than wax. A bushel of the berries will yield four or five pounds. This wax is used for a variety of purposes, but chiefly for making candles, which burn slowly and with but little smoke, emit an agreeable odor, and never melt and run down at the sides, like tallow and spermaceti; but, as they do not give a strong light, especially during cold weather, it is usual to add a portion of tallow. Such candles are a beautiful and economical article, and it is surprising they are not in more general request. A fine-scented and excellent soap, and also sealing-wax, are made from these berries. At present, however, little use is made of the bayberry, except in districts where the bushes are very abundant. It is often called *tallow-shrub*, or *candleberry*-

tree. The flowers are inconspicuous, and are disposed in aments. (Further information is given in the article *Myrtle-Wax*.)

WAX PAINTING. (See *Encaustic Painting*.)

WAX, SEALING. (See *Sealing-Wax*.)

WAYNE, Anthony, a distinguished general in the American army, was born in the township of Easttown, Chester county, Pennsylvania, Jan. 1, 1745. His father was a farmer of great respectability, and passed a long life of usefulness to his country, having frequently occupied a seat in the provincial legislature, and repeatedly distinguished himself in expeditions against the Indians. His grandfather was a warm friend of liberal principles, and commanded a squadron of dragoons, under king William, at the memorable battle of the Boyne. He emigrated to America in 1722. The subject of this sketch received a good education, though, for some time after his entrance into school, he spent much more time in planning and executing military amusements, than at his books; but, in consequence of a threat of his father to consign him to the drudgery of the farm, he applied himself assiduously to study, and, in mathematics, attained great proficiency. After leaving the Philadelphia academy, at eighteen years of age, he took up his residence in his native county, and commenced the business of a surveyor, in which he acquired great reputation and success, devoting also a portion of his time to practical astronomy and engineering. On these subjects he left manuscripts, which have obtained high commendation from adequate judges. He likewise filled some county offices, and took a very active part in the preparation for the struggle which resulted in the independence of these United States. He was one of the provincial deputies, who, early in the year 1774, were chosen by the different counties of Pennsylvania to take into consideration the alarming state of affairs between Great Britain and her colonies, and report concerning it; and a member of the Pennsylvania convention, which shortly afterwards assembled at Philadelphia, and excited powerful emulation in the other colonies. In the same year, he was chosen a representative of Chester county, in the provincial legislature, and, in the summer of 1775, was appointed a member of the committee of safety, to whom the duty appertained of calling into actual service the *associators* (as they were termed), and providing for the defence of the province against invasion from abroad and insurrection at home. Being desirous of serving his country in a military capacity, to which his natural bent was strong, he retired from civil employment in September, 1775, and raised a company of volunteers, of which he was unanimously elected colonel. In January of the ensuing year, he was appointed, by congress, colonel of one of the regiments which they had resolved to raise in Pennsylvania, and, at the opening of the campaign, received orders to join the army under general Lee, at New York. Thence he proceeded with his regiment to Canada, and shared in the unsuccessful attack upon the enemy at Three Rivers (conducted by general Thompson), on which occasion he was wounded, and distinguished himself for his bravery and good conduct in uniting and bringing off the broken troops. After the retreat from Canada, and the departure of Gates to join Washington's army, he was intrusted, by general Schuyler, with the command of the fortresses of Ticonderoga and mount Independence. Feb. 21, 1777, he was promoted, by congress, to the rank of brigadier-general. He continued in command of Ticonderoga and its dependencies until the month of May, when, in consequence of his earnest solicitations, he was allowed to join the main army, under Washington, in New Jersey, where he was immediately placed at the head of a brigade, which he made every exertion to bring into the field in the highest state of discipline. After the British retreated from New Jersey, the commander-in-chief complimented him on his bravery and good conduct. As soon as the object of the next movement of sir William Howe was developed, general Wayne, in pursuance of the directions of Washington, left his brigade under the next in command, and proceeded to Chester, in Pennsylvania, to arrange the militia who were to rendezvous there. In the battle of Brandywine (Sept. 11, 1777), he commanded a division stationed at Chad's ford, for the purpose of resisting the passage of the column under Knyphausen. He maintained the contest with the utmost gallantry until near sunset, when, at length, overpowered by numbers, and perceiving the enemy, who had defeated the right column of the American army, approaching his flank and rear, he was compelled to retreat. A few days afterwards (on the 16th), Washington determined to try the fate of another battle; and, both armies being arrayed in Goshen township, Chester county, on the road leading from Philadelphia to Lancaster, the action was commenced with great spirit by Wayne, who led the advance. It was soon arrested, however, by a violent storm, which rendered it impossible to keep the field. On the 20th, Wayne, in pursuance of the orders of the commander-in-chief, to move forward upon the enemy, and endeavor to cut off his baggage, took an excellent position, with 1500 troops, including militia, a mile south of the Warren tavern, and three miles in rear of the left wing of the British army, whence, after being reinforced, it was his intention to march and attack the enemy's rear when they decamped. He made every arrangement to prevent a surprise; but the British, having received full intelligence of his movement, from traitors, and being faithfully piloted by them, contrived to attack him unawares, with superior numbers, and obliged him to retreat after an obstinate resistance; but his troops formed again at a small distance. This affair having caused some to attach blame to him, he demanded and obtained a court-martial, by whom it was unanimously decided that he had done "every thing that could be expected from an active, brave and vigilant officer, under the orders which he then had;" and he was therefore acquitted "with the highest honor." At the battle of Germantown, he evinced his wonted valor, leading his division into the thickest of the fight, and, in covering the retreat, he used every exertion which bravery and prudence could dictate. His horse was killed under him within a few yards of the enemy's front, and he received two slight wounds, in the foot and in the hand. During a large portion of this campaign of 1777, owing to a combination of circumstances, he performed alone the duty of three general officers. About the middle of February, 1778, when the army was in winter-quarters at Valley Forge, and suffering miserably from the want of provisions, he was detached with a body of troops to New Jersey, in order to secure the cattle on the eastern banks of the Delaware, and to destroy the forage which could not be removed, lest it should fall into the hands of the enemy. This was a most hazardous and arduous enterprise, within the limits of the enemy's lines, and in a district of country subject to his control whenever he chose to exert it: but he cheerfully proceeded to execute the orders of the commander-in-chief, and literally carried on a winter campaign beyond the reach of any aid. After several skirmishes with the enemy, in all of which he was successful, he succeeded in sending to camp several hundred head of fine cattle, many excellent horses suited for cavalry service, and also in securing a quantity of forage, and destroying much more, for the whole of which, to the well-affected, he executed certificates in due form. He returned to the army about the middle of March, and, with his officers and soldiers, received the thanks of the commander-in-chief. In all councils of war, general Wayne was distinguished for supporting the most energetic and decisive measures. In that which was held before the battle of Monmouth, he and general Cadwallader were the only two of the seventeen general officers who were in favor of fighting. This engagement added to his reputation, his ardor and resolution having been so conspicuous that Washington mentioned him with particular distinction in his official report to congress. In 1779, Washington, having formed a corps of light infantry, composed of a select body of troops from the different regiments of the army, appointed general Wayne to its command. In July of this year, he was intrusted, by the commander-in-chief, with the execution of a design which he had formed for attacking the strong post of Stony Point, on the Hudson river. For the details of his success in carrying the fort (on the 15th of July) by a night assault, and making the garrison prisoners with bayonets alone, without firing a single gun, we must refer to the history of the times. In the attack, he was struck by a musket ball on the forehead, which grazed the skull nearly two inches in length, just under the hair. He fell, but instantly rose on one knee, exclaiming, "Forward, my brave fellows, forward!" then, in a suppressed voice, said to his aids, "Assist me: if mortally wounded, I will die in the fort." They did so, and the three entered amongst the foremost troops. The wound fortunately proved slight. The thanks of congress, and a gold medal emblematic of the action, were presented to Wayne for his "brave, prudent and soldierly conduct." At the end of the year 1779, the corps of light infantry was dissolved; and, soon afterwards, general Wayne resumed his command in the Pennsylvania line. During the campaign of 1780, he was constantly actively employed; and, in that of 1781, which ended in the capture of Cornwallis and the British forces at Yorktown, he bore a conspicuous part. He was sent by Washington to take command of the forces in Georgia, where the enemy were making formidable progress.

After some sanguinary encounters, he accomplished the establishment of security and order, and was presented by the legislature of the state with a valuable farm for his services. Peace soon after followed, when he retired to private life. In 1789, he was a member of the Pennsylvania convention, and an advocate of the present constitution of the U. States. In 1792, he was appointed by Washington the successor of general St. Clair in the command of the army engaged against the Indians on the western frontier. It was at first supposed that his ardor would render him an unfit opponent of a foe remarkable for caution. He soon, however, proved the incorrectness of this idea. He established admirable discipline among his troops, and by his wise and prudent measures in preparing for an engagement, and the skill and bravery with which he fought and gained the battle of Aug. 20, 1794, near the river Miami of the Lakes, he brought the war to a completely successful termination. In 1795, he concluded a definitive treaty of peace with the Indians. General Wayne died in December, 1796.

Weaning (of the child from its mother's breast). The mother's milk is necessary for the new-born infant; but, after a certain period, the cutting of the teeth shows the capacity and the need which the child has of receiving other sustenance. This takes place before the end of the first year. The age of twelve months, therefore, may be regarded as about the proper period for weaning. With children who are healthy, and cut their teeth early, it may take place still sooner: with weak, sickly children, it must be delayed longer, and never should be attempted during sickness or dentition. It is best for both mother and child to bring it about gradually. By so doing, the secretion of milk in the former is gradually diminished; and those complaints which arise from sudden weaning are prevented; while the child is gradually accustomed to other kinds of sustenance, and the restlessness and want of sleep, which are so troublesome in sudden weaning, are avoided. The child remains healthy and well nourished. For this, it is only necessary, that the mother should give the breast to the child less frequently, and offer it proper kinds of nourishment oftener, than before. These must be, both during the weaning and some time after it, very light of digestion, and more fluid than solid: in particular, they should have no stimulating qualities, and none that will tend to create acidity, or produce other marked changes in the organic functions.

Weapons. (See *Arms.*)

Wear; to cause a ship to change her course from one board to the other, by turning her stern to the wind. (See *Ship.*)

Wearmouth, Bishop's, and **Monk Wearmouth.** (See *Sunderland.*)

Weasel (*mustela*); a natural group of carnivorous quadrupeds, recognised by the slender, elongated form of the body, and the shortness of the legs. The activity of these animals is astonishing; and their flexibility is such that they are enabled to pass through extremely narrow apertures. They run with great rapidity; and the form of their nails also permits their climbing on trees. Notwithstanding their small size, they are the most sanguinary of all beasts of prey, and seem rather to seek the blood than the flesh of their victims. They will leap upon the necks of animals even larger than themselves, and never quit their hold till satiated. Many are extremely destructive to poultry, and, when they gain access to them, commence an indiscriminate slaughter. They are nocturnal and solitary animals. Some of them take up their residence in the vicinity of habitations; others pass their lives altogether in the forests; and others, again, frequent the borders of streams. Their anatomical structure corresponds, in every respect, with their habits and disposition. The canines are long and pointed: the other teeth have cutting edges, and bear a general resemblance to those of the dog. The whiskers are long and coarse. The ears are small and rounded. There are five toes on each foot. The neck is almost as large as the head. The fur is usually composed of two sorts of hairs. The skins of such as inhabit northern climates are in great demand, and form one of the principal objects of the fur trade.—The European pole-cat (*M. putorius*) is fifteen or eighteen inches in length from the nose to the origin of the tail. The general color is blackish-brown, paler on the sides, with white spots on the head. It lives in the vicinity of farm-houses, and is very destructive to poultry, rabbits, &c. It emits a strong and very disagreeable odor, but not at all comparable to that of the skunk, to which animal the same name is sometimes applied in the U. States.—The ferret (*M. furo*) is perhaps only a variety. The color is yellowish, or sometimes white, with the eyes red. It is only known in the domesticated state, and is employed to drive rabbits out of their burrows. According to Strabo, it was brought originally from Africa.—The ermine (*M. erminea*) is about nine inches in length from the nose to the base of the tail; and the latter measures about four inches. In summer, the color is chestnut-brown above, and yellowish-white beneath; and, in this state, the animal is sometimes called the *stoat;* but, in winter, it is entirely pure white, with the exception of the tip of the tail, which is black at all seasons. It is fond of wild and rocky situations, and is found in all the extreme northern parts of the globe, and in this country even as far south as our Northern and Middle States. The winter skins form a well-known article of commerce. It is very abundant in the vicinity of Hudson's bay.—The true weasel (*M. vulgaris*) is only about six inches in length to the base of the tail, and the tail an inch and a half. The upper parts of the body, as well as the tail, are clear brown, and the under parts generally white. It is found in the temperate parts of the eastern continent, and frequents the vicinity of habitations.—The mink (*M. lutreola*) is entirely of a deep-brown, except a white spot on the lower lip, which sometimes extends in a straight line to the middle of the throat. This animal lives in the vicinity of water-courses, and feeds on frogs, fish, &c.: in short, in habits and appearance, it strongly resembles the otter in miniature. The membrane which connects the toes is remarkable for its extent, which structure renders the animal better adapted for an aquatic life: accordingly, the mink swims and dives with great facility, and can remain under water for a considerable length of time. It does not, however, confine itself strictly to the water, but sometimes invades the poultry yards, when it commits as great ravages as any of the tribe. It is found throughout North America, from Carolina to Hudson's bay, and is also common in the north of Europe and Siberia.—The pine martin (*M. martes*) is nearly as large as a cat. The color is a brilliant fulvous brown, inclining to blackish on the limbs and tail, with a large yellowish patch on the throat. It lives only in the depths of the forest, ascending trees to surprise birds and squirrels, and often occupying the nest of the latter for the purpose of bringing forth its young. It is found in the northern parts of both continents, and in this country as far south as the Northern and Middle States. A vast amount of the skins are annually collected in Canada. The fur is used in manufacturing hats, and is most generally preferred for ornamenting and increasing the warmth of winter dresses.—The European martin (*M. foina*) is distinguished from the preceding by a large patch of white on the throat. It appears to be confined to the eastern continent.—The fisher, or pekan (*M. Canadensis*), is readily distinguished by its larger size, being from twenty-four to thirty inches long, exclusive of the tail, which measures from thirteen to seventeen inches. The general color is brown, with some of the hairs grayish at the extremities. The name is an improper one, for it by no means frequents the vicinity of water, but preys on small quadrupeds, birds and their eggs, &c.: indeed, its mode of life is similar, in every respect, to that of the pine martin. It is peculiar to North America, and is found from Pennsylvania to the sixty-second parallel of latitude.—The sable (*M. zibellina*). All the preceding species have naked tubercles on the soles of the feet, but, in the sable, these parts are entirely covered with hair. The general color of the fur is brown, more or less brilliant, with the inferior parts of the throat and neck grayish. It lives in the same manner as the pine martin, in the depths of the forest, and inhabits all the northern parts of Europe and Asia. This is the most celebrated of the tribe, not only on account of the richness of the fur, but from the horrors of the chase, carried on in the depth of winter, among mountains covered with ice, and in the deepest snows, in the coldest and most desolate regions to which man has yet penetrated. It was the search for sables which led to the discovery of Eastern Siberia. Their skins form a considerable article of commerce with the Russians.—*M. huro* of F. Cuvier is a species from Canada, having the fur almost as fine as that of the sable, and the soles of the feet covered with hair in a similar manner, but of a pale yellowish-brown color, with the feet and tail darker. Little is known of this animal, or of the district which it inhabits. A specimen was obtained by Lewis and Clarke, during their journey to the Pacific, and is now deposited in the Philadelphia museum. According to Pallas, skins of the sable are common among the furs sent from the extreme north-western point of America to the inhabitants of the opposite angle of Asia.

WEAVING, the art of producing cloth, by the combination of flexible fibres, is performed upon a frame called a *loom*, the invention of which is attributed to the Egyptians. It has, however, received many modifications and great improvements in modern times, and is differently constructed, according to the nature of the texture to be produced. The art of weaving by the power of steam or water seems to have been invented, or, at least, first successfully carried into operation, in Scotland, in 1801; and such is the improved state of the process at present, that one girl attends two looms. This mode of weaving, however, could never have succeeded, and, indeed, must long ago have been abandoned, if the process for dressing the web before it is put into the loom had not been devised: this rendered the stoppage of the work from time to time—which made it impossible for one person to attend to more than one loom—unnecessary. The following account of the processes of dressing and weaving is from Bigelow's Technology (2d ed., Boston, 1832.)—"*Dressing*. As the threads which constitute the warp are liable to much friction in the process of weaving, they are subjected to an operation called *dressing*, the object of which is to increase their strength and smoothness, by agglutinating their fibres together. To this end, they are pressed between rollers impregnated with mucilage made of starch, or some gelatinous material, and immediately afterwards brought in contact with brushes, which pass repeatedly over them, so as to lay down the fibres in one direction, and remove the superfluous mucilage from them. They are then dried by a series of revolving fans, or by steam cylinders, and are ready for the loom.—*Weaving*. Woven textures derive their strength from the same force of lateral adhesion, which retains the twisted fibres of each thread in their situations. The manner in which these textures are formed is readily understood. On inspecting a piece of plain cloth, it is found to consist of two distinct sets of threads running perpendicularly to each other. Of these, the longitudinal threads constitute the *warp*, while the transverse threads are called the *woof*, *weft*, or *filling*, and consist of a single thread passing backwards and forwards. In weaving with the common loom, the warp is wound upon a cylindrical beam or roller. From this the thread passes through a *harness*, composed of movable parts, called the *heddles*, of which there are two or more, consisting of a series of vertical strings, connected to frames, and having loops through which the warp passes. When the heddles consist of more than one set of strings, the sets are called *leaves*. Each of these heddles receives its portion of the alternate threads of the warp, so that, when they are moved reciprocally up and down, the relative position of the alternate threads of the warp is reversed. Each time that the warp is opened by the separating of its alternate threads, a *shuttle*, containing the woof, is thrown across it, and the thread of woof is immediately driven into its place by a frame called a *lay*, furnished with thin reeds or wires, placed among the warp like the teeth of a comb. The woven piece, as fast as it is completed, is wound up on a second beam opposite to the first. Power looms driven by water or steam, although a late invention, are now universally introduced into manufactories of cotton and wool. As the motions of the loom are chiefly of a reciprocating kind, they are produced, in some looms, by the agency of cranks, and in others by cams or wipers, acting upon weights or springs.—*Twilling*. In the mode of plain weaving last described, it will be observed that every thread of the warp crosses at every thread of the woof, and *vice versa*. In articles which are *twilled*, or *tweeled*, this is not the case; for, in this manufacture, only the third, fourth, fifth, sixth, &c., threads cross each other to form the texture. In the coarsest kinds, every third thread is crossed; but, in finer fabrics, the intervals are less frequent, and, in some very fine twilled silks, the crossing does not take place till the sixteenth interval. A loom invented in this country, by Mr. Batchelder, of Lowell, has been applied to the weaving of twilled goods by water-power. Twilled fabrics are thicker than plain ones when of the same fineness, and more flexible when of the same thickness. They are also more susceptible of ornamental variations. Jeans, dimoties, serges, &c., are specimens of this kind of texture.—*Double Weaving*. In this species of weaving, the fabric is composed of two webs, each of which consists of a separate warp and a separate woof. The two, however, are interwoven at intervals, so as to produce various figures. The junction of the two webs is formed by passing them at intervals through each other, so that each particular part of both is sometimes above and sometimes below. It follows that, when different colors are employed, as in carpeting, the figure is the same on both sides, but the color is reversed. The weaving of double cloths is commonly performed by a complicated machine, called a *draw-loom*, in which the weaver, aided by an assistant, or by machinery, has the command of each particular thread by its number. He works by a pattern, in which the figure before him is traced in squares, agreeably to which the threads to be moved are selected and raised before each insertion of the woof. Kidderminster carpets and Marseilles quilts are specimens of this mode of weaving.—*Cross Weaving*. This method is used to produce the lightest fabrics, such as gauze, netting, catgut, &c. In the kinds of weaving which have been previously described, the threads of the warp always remain parallel to each other, or without crossing. But, in gauze weaving, the two threads of warp which pass between the same splits of the reed, are crossed over each other, and partially twisted, like a cord, at every stroke of the loom. They are, however, twisted to the right and left alternately, and each shot, or insertion of the woof, preserves the twist which the warp has received. A great variety of fanciful textures are produced by variations of the same general plan."

Weber, Godfrey, a theoretical and practical musician, born at Freinsheim, near Manheim, in 1779, studied law, and received an appointment as jurist, but, at the same time, devoted himself to music. The flute and violoncello were his instruments. He subsequently occupied himself chiefly with the theory of music, and published numerous articles on this subject in the Leipsic and Vienna Musical Gazettes, in the great German Encyclopædia (edited by Ersch and Gruber), in the musical gazette called *Cæcilia*, edited by himself, &c. &c., and in his distinguished work, Essay towards a systematic Theory of the Art of Composition for Self-instruction, with Notes for Scholars (2d ed., 1824 seq., 4 vols.), and his General Doctrine of Music, for Teachers and Learners (Darmstadt, 1822). He was eventually appointed advocate-general of the court of cassation in Darmstadt, and received titles and orders. He composed many songs, also a collection called the *Lyre and Sword*, not to be confounded with the songs under the same title composed by Charles Maria von Weber. (q. v.) There are also other compositions of his. He invented the musical chronometer. (See *Time*.) His inquiries respecting the genuineness of Mozart's requiem have involved him in various controversies.

Weber, Henry William, was the son of a native of Westphalia, who was married to an English lady, and settled as a merchant at St. Petersburg, where the son was born in 1783. His father dying when he was but three years old, his mother removed into Saxony, and her son received his education at a German university. At the age of fourteen, he quitted Germany for England, and, adopting the profession of medicine, attended lectures one winter at Edinburgh, and then went to finish his studies at Jena. Returning to Edinburgh to obtain a medical diploma, he there formed an acquaintance with sir Walter Scott, by whose advice he devoted himself to literature as a profession. In 1808, he commenced his career by publishing a new edition of the Battle of Flodden Field, a Poem of the Sixteenth Century, which was followed by Metrical Romances of the Thirteenth, Fourteenth and Fifteenth Centuries, from ancient Manuscripts, with an Introduction, Notes, and a Glossary (3 vols.); and, in conjunction with Jamieson, he produced a work entitled Illustrations of Northern Antiquities, from the earliest Teutonic and Scandinavian Romances (1814, 4to.). In September, 1816, Mr. Weber became disordered in his intellects, in which state he remained till his decease, in 1818. Besides the works already noticed, Mr. Weber published editions of the Plays of Ford (2 vols., 8vo.), and of those of Beaumont and Fletcher (14 vols.); but his execution of these undertakings did not add to his reputation; and his errors, as a dramatic commentator, were exposed by Mr. Gifford.

Weber, Charles Maria von, was born December 18, 1786, at Eutin, in Holstein, and received a very careful education. Painting and music occupied his attention in his leisure hours. His efforts in the former art were not without success. But music gradually took entire possession of him. As soon as his father observed the promise of distinguished talent in his son, he fostered it with great care. Towards the end of the year 1798, he went to Munich, and his talent for dramatic music began to develope itself. He wrote, under the eyes of his teacher, an opera called the Power of Love and Wine; also a mass, and other compositions, all of which he subsequently burned. Soon after, he became possessed with the idea of excelling Sennefelder's new invention of lithography. He thought that he had discovered a better process, and went with his father to Freiberg, in Saxony, where all the necessary materials seemed to be at hand. But he soon gave up his idea, and with redoubled zeal resumed his application to his music. Six variations of his were published at that time in Munich. When a boy of fourteen, he composed an opera (the Maid of the Wood), which was performed in 1800, and acquired a celebrity subsequently disagreeable to the author, who had come to consider it a very immature production. In 1802, he made a musical journey with his father, and collected and studied theoretical works on music with the greatest zeal, and, having been led, by his own reflections, to study harmony thoroughly, formed a musical system of his own, in which he adopted the excellent rules of the old masters. He went to Vienna, where he became acquainted with the immortal Haydn, and with Vogler (q. v.), who received him with great kindness. By Vogler's advice, he gave up for a time, though with reluctance, the composition of large pieces, and studied for two years the works of the greatest masters. At the same time, he acquired great proficiency in playing on the piano. During this time, he published only a few small works. He then went, as musical director, to Breslau, where he composed the greatest part of *Rübezahl*, an opera by Rhode. In 1806, Eugene, duke of Würtemberg, induced him to go to Carlsruhe, in Silesia, where he wrote two symphonies, several concerts, &c. He soon after followed the duke to Stuttgard, where he wrote his opera *Silvana;* re-wrote his cantata the First Tone, several overtures, &c.; and composed much for the piano. In 1810, he set out for France, Munich, Berlin, &c., and wrote his opera *Abu-Hassan.* From 1813 to 1816, he directed the opera in Prague, where he composed the great cantata Battle and Victory, which, though imposing by its grandeur and copiousness of ideas, does not yet show a settled style. Living only for his art, he gave up his place, when his purpose—the entire reorganization of the opera, was effected. In 1816, he lived in Berlin, where he received an invitation to form a German opera at Dresden, which he accepted, and to which he devoted all his powers. There he wrote, besides several instrumental pieces, various occasional cantate; a mass and offertorium (1818) for the day of the king's baptism, which was afterwards followed by a second one; and his *Der Freyschütz* (text by Kind), which was first performed in Berlin in 1821, and since that time has acquired universal reputation; and several melodies, which, like some of Mozart's, are sung, and even whistled, wherever Europeans or their descendants are found. At the same time, he composed the music for *Preziosa.* The uncommon success of *Der Freyschütz* procured him an invitation to compose an opera for Vienna, for which purpose madame de Chezy wrote for him *Euryanthe*, after an old French tale. This work occupied him chiefly from 1822 to the autumn of 1823; and, in September of the same year, he travelled to Vienna to direct its performance, which took place, for the first time, October 25, 1823. It met with great applause. In 1824, Weber received from London an invitation to compose *Oberon* for Covent-garden theatre. The first act was sent him at the same time. He prepared himself for it by studying English. But the numerous duties of his appointment, often increased by the addition of those of his colleague, Morlachi, who was in ill health, and often went to Italy, together with his devotion to study, impaired his health. He went, in the summer of 1825, to Ems. Towards the end of 1825, he directed the performance of his *Euryanthe* on the stage of Berlin. His health grew worse in 1826. In February, he went to London, where he finished his magnificent *Oberon*, directed the performance of it, and on the day when *Der Freyschütz* was to be performed for his benefit (June 5), breathed his last. Weber made an epoch in opera music, produced much that was new, applied the instruments with great effect, and, in fact, gave a new life to the opera. The songs of the spirits in *Oberon* have a peculiarly ideal character. Unfortunately, his comic opera the Three Pintos, on which he had labored for several years, was left unfinished. Weber united many great musical qualities: he was not only one of the most original composers, a great performer, showing peculiar originality in piano playing, an ardent, judicious and intelligent director, equally at home in the æsthetical and in the technical parts of his art,—but also a very intellectual and accomplished man, with higher and more philosophical views of life than artists often have. Besides the works already mentioned, his published compositions comprise a number of instrumental pieces especially for concertando instruments, and calculated for accomplished performers (concerts, concertinos, pot-pourris and harmony pieces for the piano-forte, clarionet, bassoon, horn, violoncello, sonatas, variations, polonaises and dances, some symphonies, and a quintetto for the clarionet), various cantatas, vocal pieces for four voices, and songs (particularly the compositions of Körner's Lyre and Sword, which have become truly national songs of the Germans). The Posthumous Works of Ch. M. von Weber (Dresden, 1828), containing the results of his views and experience, are of much interest. Weber was an excellent man, a kind husband, a careful father, and faithful friend.

Webster, John, a dramatic poet of the seventeenth century, was clerk of the parish of St. Andrew, Holborn, and a member of the company of merchant tailors. His works are the White Devil, or the Tragedy of P. Giordano Ursini, Duke of Brachiano, with the Life and Death of Vittoria Corombona, the famous Venetian Courtesan (1612); the Devil's Law-Case, a tragi-comedy (1623); the Duchess of Malfy, a tragedy (1623); Appius and Virginia, a tragedy (1654); the Thracian Wonder, a comical history (1661); and a Cure for a Cuckold, a comedy (1661). He was also the author of a pageant, exhibited in 1624, by the tailors' company; and he assisted Dekker in writing Wyatt's History.

Wechabites. (See *Wahabees.*)

Wedderburn, Alexander, earl of Rosslyn, a distinguished English lawyer, eldest son of Peter Wedderburn, one of the senators of the college of justice in Scotland, was born in 1733, and bred to the law in his native country, but early removed to the Middle Temple, by which society he was called to the bar in 1757. He rapidly acquired reputation, and also obtained the patronage of the earls of Bute and Mansfield. He was appointed solicitor-general in 1771, in which office he insulted Franklin, in arguing before the privy council on American affairs. In 1778, he was made attorney-general, and, in 1780, chief justice of the common pleas, with the title of lord Loughborough. He adhered to the party of Mr. Fox when Mr. Pitt first came into power; but joined the administration, with many others, under the alarm produced by the French revolution in 1793, when he succeeded lord Thurlow as chancellor, which office he held until 1801, when he retired with the title of earl of Rosslyn. As a lawyer, he was able, plausible, subtle and eloquent; as a politician, rather a partisan than a statesman, but serviceable to the side which he espoused. He died without issue, January 3, 1805. Lord Rosslyn wrote a work on the management of prisons.

Wedding, Wedlock. (See *Marriage*, and *Husband and Wife.*)

Wedekind, George Christian Gottlieb, baron von, was born in 1761, at Göttingen, where his father was a professor, was graduated in 1780, and soon distinguished himself in various places as a practical physician and as an author. In 1787, he was appointed body physician to the elector of Mayence, and professor of medicine in the university of that city. But after some time, he lost the favor of the elector, who had been prejudiced against him by another physician. Wedekind was even accused of belonging to the sect of *illuminati*, but without grounds. Among his works are the following:—On Medical Instruction (Frankfort, 1799); On the Effect of Confidence and the Way of Curing by Persuasion (Frankfort, 1790); Lectures on Inflammations (Leipsic, 1791); *De vera Notitia et Curatione Morborum primarum Viarum, nec non de Morbis ex earundem Affectionibus oriundis atque cum iisdem complicatis* (Nuremberg, 1792). When Mayence came under the dominion of the French, in 1792, Wedekind entered the French service es physician of the military hospitals. He wrote, whilst in this capacity, On Cachexy in general, and on Hospital Cachexy in particular (Leipsic, 1796), and Accounts of the French Military Hospitals (Leipsic, 1797—98, 2 vols.). He also wrote against Jacobinism. By his Economical and Political State of France under her Constitution of the Third Year of the Republic (in favor of the directory), he obtained the civic crown. But afterwards, when the defects of the constitution became visible, he wrote against it, in his Letters on the Revolution of the 18th of Brumaire (1800). After Napoleon's government had become oppressive, Wedekind gave up his rights as a French citizen, and became body physician to the grand duke of Hesse-Darmstadt. Among his later works is a treatise On the Typhus or tha Contagious Nervous Fever (1814), which has been translated into English, Spanish and Portuguese, and one On the Value of Medicine (1816). Of his numerous other medical treatises, many are given in his article in the German *Conversations-Lexicon.* He has also written On the Changes which the Spirit of the Time requires to be made in the Institution of Nobility (1816), and On the Destination of Man (Giessen, 1827).

Wedge. (See *Mechanics.*)

Wedgwood, Josiah, an ingenious improver of the pottery manufacture, was born in July, 1730, and was the younger son of a potter, to whose business he succeeded. He soon distinguished himself by his discoveries of new species of earthen ware and porcelain (q. v.), as well as by the taste and fancy displayed in the forms and decorations of the various results of his ingenuity. So important was the result, that in a very few years he turned the current of importation of the finer earthen wares into that of exportation. In 1763, he obtained a patent for a new species of ware, which received the name of *queen's ware*, and, continuing his experimental researches, added six other different species of ware to the English manufacture. He was versed in several branches of natural philosophy, and invented a pyrometer (q.v.) for measuring the higher degrees of heat employed in the various arts. He was also the proposer of the Grand Trunk canal, uniting the Trent and Mersey, and subsequently communicating with the Severn and the Grand Junction canal. To this navigation, which was of the greatest benefit to the pottery district, he added a turnpike-road, ten miles in length, which gave still greater facilities to that extensive branch of manufacture. His own pottery was near Newcastle-under-Line, in Staffordshire, where he built a village, which he called Etruria. In 1786, he was the promoter of an association in London, denominated the general chamber of the manufactures of Great Britain; and he much distinguished himself by opposing Mr. Pitt's proposition for adjusting the commercial intercourse between Great Britain and Ireland. His death took place January 3, 1795, in his sixty-fourth year. To great public spirit and an open hand in the distribution of the large fortune which he acquired by his spirit and enterprise, in beneficial objects and institutions, Mr. Wedgwood united great private benevolence, and was a benefactor to the poor in the most enlarged sense of the term. He was a member of the royal and antiquarian societies. (See *White Ware.*)

Wednesday; the fourth day of the week (in Latin, *dies Mercurii*, whence the French *Mercredi*, the Italian *Mercoledi*, &c.). The Germans call it *Mittwoche* (mid-week). The English name is derived from the old Scandinavian deity Odin or Woden. In Anglo-Saxon, it is *Vodensdag*; in Swedish, *Odensdag*; in Dutch, *Woensdag*. We find the same prefix in the name of some English towns: Wednesbury, Wednesfield, &c. (See *Week*. See, also, *Ash-Wednesday*.)

Week. The week approaches pretty nearly to a quarter of a lunation; but this division of time has no obvious foundation in nature. It appears, notwithstanding, to have prevailed very extensively over the world from the earliest times; and, what is remarkable, the days of the week are generally named after the sun and planets, only six planets having been known to the ancients. This manner of distinguishing a series of seven days is found to be the same among the ancient Egyptians, Indians and Chinese. Still the order is not that of the distances, magnitude or brightness of the planets. The following ingenious conjecture has been adopted to account for the origin of the names and arrangement of the days of the week:—The planetary arrangement of Ptolemy was thus: 1. Saturn; 2. Jupiter; 3. Mars; 4. the Sun; 5. Venus; 6. Mercury; 7. the Moon. Each of these planets was supposed to preside successively over each hour of the twenty-four of each day, in the order above given. In this way, Saturn would preside over the first hour of the first day, Jupiter over the second hour, Mars over the third, the sun over the fourth, and so on. Thus the sun, presiding over the fourth, eleventh and eighteenth hours of the first day, would preside over the first hour of the second day; and, carrying on the series, the moon would preside over the first hour of the third day, Mars over the first hour of the fourth day, Mercury over the first hour of the fifth day, Jupiter over the first hour of the sixth day, and Venus over the first hour of the seventh day. Hence the names of the days yet used in the learned professions: 1. *dies Saturni* (Saturday); 2. *dies Solis* (Sunday); 3. *dies Lunæ* (Monday); 4. *dies Martis* (Tuesday); 5. *dies Mercurii* (Wednesday); 6. *dies Jovis* (Thursday); 7. *dies Veneris* (Friday). The English names of the days of the week are derived from the Saxons, and are partly adopted from the more civilized nations of antiquity. (For the etymology of the English names, see the separate articles.)

Weeninx, John Baptist, a celebrated Dutch painter, was born at Amsterdam, in 1621. He was the son of an architect, and became the pupil of Abraham Bloemart. After residing some time in Italy, he returned to Holland, and settled at Utrecht, where he died in 1660. He painted small landscapes, animals and historical pieces with great accuracy and perfection, but was deficient in variety.—His son *John*, born at Amsterdam, in 1644, was more distinguished. He studied at first under his father, and acquired great skill in the delineation of animals. Still life, the chase, dead game, &c., are represented in his works with an inimitable truth and great beauty of coloring. He died at Amsterdam, in 1719.

Weevil (*curculio*); a genus of hard-shelled beetles, easily recognised by having the head prolonged into a long horny snout, at the end of which the mouth is situated. By later naturalists, this has very justly been considered as a family of insects, and has been divided into numerous genera. These insects have four joints to each of the tarsi; the antennæ arise from the snout above mentioned, are usually clavate, and in most of the genera form an angle at the apex of the first joint: the abdomen in all is large. The larvæ are entirely destitute of feet, and live, some in the interior of seeds, others in wood, in the interior of stems, under the bark of trees, in fruits, in the hardest nuts, and some even in the interior of the bodies of other insects. In their perfect state, all these insects feed on different parts of plants, but especially on leaves and the petals of flowers.—The weevil proper (*calandra granaria*) is best known on account of the ravages it commits among grain, sometimes destroying one third or one fourth of the whole crop. Each larva, as soon as born, penetrates into the interior of a grain, and feeds on its substance till it has attained its full size; then undergoes a change, and takes the form of a chrysalis; and in due time the perfect insect perforates the hull, which is now nearly empty. It is a European insect, and in that continent its ravages are chiefly felt. Great complaints are, however, made of the weevil among wheat, in certain parts of the U. States, and particularly in Virginia. Having never seen a specimen of this American weevil, we are unable to decide upon its identity with the above; if identical, it must have been, by some means, introduced from Europe into this country.—The *C. oryzæ* very much resembles the preceding. It lives in rice, but is observed to attack principally those grains from which the hulls have not been detached.

Wegscheider, Julius Augustus Louis, doctor, one of the most celebrated of the (so called) rationalist theologians of modern times, was born in 1771, in Kübbelingen, in Brunswick, where his father was a preacher. At the university of Helmstädt he studied theology, philosophy and philology. Having finished his studies, he soon became a teacher in the academy in which he had received his instruction. He then became tutor in the house of a wealthy merchant in Hamburg, where he occasionally preached with great approbation. Two works, written during this period, *Ethices Stoicorum recentiorum Fundamenta ex ipsorum Scriptis eruta atque cum Principiis Ethices, quæ critica Rationis practicæ secundum Kantium exhibet, comparata* (Hamburg, 1797), and An Attempt to present the Chief Principles of a Philosophical System of Religion in Sermons (Hamburg, 1801), show how zealously he devoted himself, at that period, to philosophy, particularly that of Kant, and theology. To these sermons is prefixed a treatise on the mode of awakening an interest in religion, in which he shows how a liberal and frank address to the reason should be united with a judicious operation on the feelings. He also produced a work dedicated to Jacobi (q. v.), On the Separation of Morals from Religion, demanded by Modern Philosophy (Hamburg, 1804). In 1805, he yielded to his inclination for an academical life, and went to Göttingen, where he settled as *magister legens* and *theological repetent*. On this occasion, he wrote a treatise *De Græcorum Mysteriis Religioni non obtrudendis* (Göttingen, 1805), soon followed by his learned Introduction to the Gospel of John (Göttingen, 1806). In 1806, he accepted the professorship of theology and philosophy at Rinteln, after the university of Göttingen had conferred upon him the degree of doctor of theology. In 1810, when the university of Rinteln was abolished, he received a professorship in Halle, and published The First Epistle of Paul to Timothy, translated anew and explained, with Reference to the latest Inquiries respecting its Authenticity (Göttingen, 1810). In this work he refuted the doubts which Schleiermacher had raised respecting its authenticity, in a small treatise in 1807, and showed that, if it cannot be proved beyond doubt that Paul wrote the Epistle, this is infinitely more probable than any other hypothesis. Wegscheider lectures on the exegesis of the New Testament, the history of dogmas, and particularly dogmatics. In 1815, he published his *Institutiones Theologiæ Christianæ Dogmaticæ*, of which there appeared, in 1826, a fifth edition, enlarged. In this work, the opinions of the supernaturalists respecting ecclesiastical dogmas, are criticised according to the views of the rationalists, and a system of Christian dogmatics presented according to the principles of rationalism, and, for the first time, carried through consistently by Wegscheider. He directed the exercises of a theological society of students, which, in 1826, became a department in the royal theological seminary under his superintendence. In 1830, he and Gesenius were zealously attacked by the supernaturalists: this led to an investigation by the government, which was not attended with any unpleasant consequences to him.

Weigel, Valentine. (See *Weigelians*.)

Weigelians were a Protestant sect in the seventeenth century, chiefly resident in Upper Saxony, founded by Val. Weigel, pastor of Tschopau, in the Saxon Erzgebirge (born in 1533, died in 1588), a pious and popular minister. The writings of Theophrastus Paracelsus, and of Tauler, had led him to entertain peculiar views, which he set forth in his works. These, however, were not published till long after his death (1611—21). He speaks much of an unborn inner light. The theology taught at the universities is false in his eyes. All creatures are effluxes of the Divine Being. His view of the Trinity was peculiar. He set little value on outward worship, and depicts the ministers of the Protestant church in black colors. Several of his works were burnt in 1624, at Chemnitz; but they had already gained many adherents. Jacob Böhme was a Weigelian.

Weights. In the article *Measures*, we have given an account of the reformation of the English measures. The article *France*, division *Decimal System of France*, explains the principles of the new French measures. The following tables exhibit the relations of some of the most important measures of weight.

1. *French Measures of Weight.*—The unit used in weighing is the kilogramme. It has been fixed by law, and is equal to the specific weight of the distilled water contained in one cubic decimètre. The kilogramme thus fixed was found to be equal to 2 livres (pounds), 5 gros, 35 grains, $\frac{15}{100}$ poids de marc, and to 2 lbs. 8 oz. 3 dwt. 6.355 grains troy, or 2 lbs. 2 oz. 4 drams, 16 grains avoirdupois weight, English. As the most common things of daily consumption are sold by weight in small quantities, a great difficulty arose in introducing this part of the system; and the old denominations of weight have therefore been allowed to remain, with some modification in their actual value, taking the kilogramme as the basis. The kilogramme is divided into 2 livres; the livre is subdivided into 16 ounces, the ounce into 8 gros, and the gros into 72 grains. This new livre, therefore, exceeds the old one (poids de marc) by $\frac{2}{100}$; so, to reduce kilogrammes into old measure, it is necessary to multiply by 2 and add $\frac{8}{100}$.

English Troy.		*French.*
1 grain (1-24th of a dwt.)	=	0.06477 gramme.
1 pennyweight (1-20th of an ounce) .	=	1.55456 gramme.
1 ounce	=	31.0913 grammes.
1 pound troy imperial	=	0.3730956 kilogramme.

English Avoirdupois.		*French.*
1 dram (1-16th of an ounce)	=	1.7712 gramme.
1 ounce (1-16th of a pound)	=	28.3384 grammes.
1 pound avoirdupois imperial	=	0.4534148 kilogramme.
1 hundred weight (112 pounds)	=	50.78246 kilogrammes.
1 ton	=	1015.649 kilogrammes.

1 millier = 1000 kilogrammes (weight of a tun of sea-water).
1 quintal = 100 kilogrammes.
1 hectogramme = 1-10th of a kilogramme.
1 decagramme = 1-100th "
1 gramme = 1-1000th "
1 decigramme = 1-10,000th "

2. *English Measures of Weight.*—The statute of 5 George IV, c. 74, made some slight modifications in the measures of weight, but retained, in the main, the existing measures. "The troy weight," say the commissioners of weights and measures, "appeared to us to be the ancient weight of this kingdom, having existed in the same state from the time of Edward the Confessor; and there are reasons to believe that the word *troy* has no reference to any town in France, but rather to the monkish name given to London of Troy Novant, founded on the legend of Brute: troy weight, therefore, according to this etymology, is, in fact,

London weight. We were induced, moreover, to preserve the troy weight, because all the coinage has been uniformly regulated by it; and all medical prescriptions or *formulæ* always have been estimated by troy weight, under a peculiar subdivision, which the college of physicians have expressed themselves most anxious to preserve." It was resolved, therefore, to continue the use of troy weight, and also, on account of the accuracy of the troy standard, to raise the avoirdupois weight from this basis. "We found," continue the commissioners, "the avoirdupois weight, by which all heavy goods have been for a long time weighed (probably derived from *avoirs* (*averia*), the ancient name for goods or chattels, and *poids*, weight), to be universally used throughout the kingdom. This weight, however, seems not to have been preserved with such scrupulous accuracy as troy weight, by which more precious articles have been weighed; but we have reason to believe that the pound cannot differ by more than one, two or three grains, from 7000 grains troy. It, therefore, occurred to us, that we should be offering no violence to this system of weights, if we declared that 7000 grains troy should be hereafter considered as the pound avoirdupois." It was accordingly enacted that, from January 1st, 1826, the standard brass weight of one pound troy weight, made in 1758, should be the genuine standard measure of weight, and be denominated the imperial standard troy pound, containing 5760 grains, and that 7000 such grains should be a pound avoirdupois.

DIVISION I.—*Avoirdupois Weight.*

$27\frac{11}{32}$ grains . . . . . . = 1 dram. . . . . = $27\frac{11}{32}$ grains.
16 drams . . . . = 1 ounce . . . . = $437\frac{1}{2}$ "
16 ounces . . . . = 1 pound (lb.) . . . . = 7000 "
28 pounds . . . . = 1 quarter (qr.).
4 quarters . . . . = 1 hundred weight (cwt.).
20 hundred weight . . = 1 ton

This weight is used in almost all commercial transactions, and in the common dealings of life.

Particular Weights belonging to this Division.

8 pounds . . . = 1 stone used for meat and fish.

		cwt.	qr.	lb.	
7 pounds . . .	= 1 clove				used in the wool trade.
14 pounds . . .	= 1 stone . . . . =	0	0	14	
2 stone	= 1 tod . . . . . =	0	1	0	
$6\frac{1}{2}$ tod	= 1 wey . . . . . =	1	2	14	
2 weys	= 1 sack . . . . . =	3	1	0	
12 sacks	= 1 last . . . . . =	39	0	0	

A pack of wool contains 240 lbs. A truss of hay weighs 56 lbs., and of straw 36. stone of glass is 5 lbs.; a seam 24 stone.

8 pounds . . . . . . =	1 clove, ...	used for cheese and butter.
32 cloves . . . . =	1 wey in Essex, . . .	
42 " . . . . =	" in Suffolk, . .	
56 pounds . . . . . . =	1 firkin, ...	

DIVISION II.—*Troy Weight.*

24 grains . . . . = 1 pennyweight . . . . = 24 grains.
20 pennyweights . . . . = 1 ounce . . . . = 480 "
12 ounces . . . . = 1 pound . . . . = 5760 "

These are the denominations of troy weight when used for weighing gold, silver, and precious stones, except diamonds. But troy weight is also used by apothecaries in compounding medicines, and by them the ounce is divided into eight drams, and the dram into three scruples, so that the latter is equal to twenty grains. For scientific purposes, the grain only is used; and sets of weights are constructed in decimal progression, from 10,000 grains downwards to one hundredth of a grain. By comparing the number of grains in the avoirdupois and troy pound and ounce respectively, it appears that the troy pound is less than the avoirdupois, in the proportion of fourteen to seventeen nearly; but the troy ounce is greater than the avoirdupois, in the proportion of seventy-nine to seventy-two nearly. The *carat*, used for weighing diamonds, is 3⅙ grains. The term, however, when used to express the fineness of gold, has a relative meaning only. Every mass of alloyed gold is supposed to be divided into twenty-four equal parts: thus the standard for coin is twenty-two carats fine; that is, it consists of twenty-two parts of pure gold, and two parts of alloy. What is called the *new standard*, used for watch-cases, &c., is eighteen carats fine.

3. *Ancient Weights.*—It is well known that this subject is involved in considerable difficulty. The following table gives the estimates of different authors, in regard to some of the ancient weights.

		English Troy Grains.	
Attic obolus	=	8.2 9.1	Christiani. Arbuthnot.
Attic drachma, . . .	=	51.9 54.6 69.	Chr. Arb. Paucton.
Lesser mina	=	3,892	Chr.
Greater mina	=	5,189 5,464 6,900	Chr. Arb. Pauc.
Medical mina	=	6,994	Arb.
Talent = 60 minæ	=	½ cwt.	English.
		Grains.	
Old Greek drachm	=	146.5	Arb.
Old Greek mina . .	=	6,425	"
Egyptian mina . . .	=	8,326	"
Ptolemaic mina of Cleopatra	=	8,985	"
Alexandrian mina of Dioscorides	=	9,992	"
Roman denarius . .	=	51.9 = ⅛ Roman oz. 62.5 = ⅐ Roman oz.	Chr. Arb.
Denarius of Nero . .	=	54	Pauc.
Ounce	=	415.1 437.2 431.2	Chr. Arb. Pauc.

Pound = 12 Roman ounces.

Weigl, Joseph, a distinguished opera composer, born in 1766, at Eisenstadt, in Hungary. In his fifteenth year, he composed a small opera. Gluck and Salieri aided him, and he became director of the Italian opera. In 1807, he was in Milan, where his *Il Rivale di se Stesso* attracted much attention. He now resides in Vienna. His genius is more adapted to the agreeable and gay than to the grand. Some of his most admired productions are, *La Principessa d'Amalfi; Giulietta e Pierotto; I solitarj; L'Amor marinaro; L'Uniforme*; and, in a different style, his Orphan Asylum (1808); Swiss Family (1809); the Hermit of the Alps; Francisca de Foix; the Fall of Goldau (1812). He has also written other operas, besides some oratorios.

Weimar, Saxe (in German, *Sachsen-Weimar*); a sovereign grand-duchy of Germany, lying on the south of the Prussian government of Erfurt, and bordering on Gotha. It is composed of two parts or provinces, separated from each other—the principality of Weimar, and the principality of Eisenach, with a population of 226,628 souls, on 1400 square miles. The province of Weimar comprehends the duchies of Weimar and Jena, with a part of the principality of Altenburg, the chief part of the circle of Neustadt, and the petty districts of Ilmenau, Oldisleben, and Alstadt, which lie scattered in Thuringia. The province of Eisenach lies on the west side of Gotha, and to the east of Hesse-Cassel. (See *Eisenach*.) The surface of the province of Weimar is agreeably diversified; the soil fertile, producing corn sufficient for consumption; and it has good pastures, which feed numerous flocks of sheep; but large cattle are less attended to. The province of Eisenach is more mountainous and less fertile. The revenue is about $800,000. The government is a limited monarchy, administered by the grand-duke, with a representative constitution, granted by the duke May 5, 1816, which established a diet composed of deputies from the nobles, citizens and peasants, and guarantied the freedom of the press. The grand-duke of Saxe-Weimar-Eisenach has the twelfth vote in the German diet, in conjunction with the other princes of the Ernestine line (see *Saxony*), and one vote by himself in the plenum. The grand-duchy has one university, that of Jena (q. v.), with (in 1829) 619 students, two gymnasia, and numerous inferior institutions for education. The religion is Lutheran.

Weimar; capital of the grand duchy, on the Ilm; 94 miles west of Dresden; lon. 11° 21′ E.; lat. 50° 59′ N.; population, 9917. It is situated in a pleasant valley, with a woody mountain to the north, and hills of little elevation to the south and east, while the river winds along the south side of the town. The prospect is agreeable, particularly in summer, when the gardens surrounding the town appear to encircle it with foliage. The houses are built in a plain and somewhat antique style. The grand ducal residence is a large castle, finely situated to the east of the town, with a park extending to the banks of the Ilm, and open to the public. The Belvidere, another residence of the reigning family, is situated on a delightful eminence to the south. The town contains two Lutheran churches, a work-house, an hospital, a gymnasium, a seminary for school-masters, an academy for drawing, painting and sculpture, a theatre, erected in 1825, an extensive institution connected with the study of geography and statistics, and a public library of upwards of 130,000 volumes. Weimar is a town of literary celebrity, and long held the same rank in Germany, for literature, as Dresden has for the fine arts; and, owing to the liberal patronage of the court, a number of the best writers of the last and present age have either been educated or residents here. In the early years of the present century, there were residing here more than twenty writers of note, among whom were Schiller, Göthe, Herder, Wieland and Kotzebue; the last of whom was a native.

Weimar, Anna Amalia, duchess of Saxe. (See *Amalia.*)

Weimar, Charles Augustus, grand duke of Saxe, born in 1756, and died in 1828, may well boast of having done great things in a little state. He was educated by his mother Amalia (q. v.), who first collected the lights of learning in the little court of Weimar. The young prince was carefully instructed by able men, among whom was Wieland, and, after travelling in France and Switzerland, assumed the reins of government in 1775. During his reign of fifty-three years, he was not only the father of his people, but the patron of learning and the arts. Göthe, Herder, Wieland, Schiller, von Voigt, von Einsiedel, von Knebel, Musäus, and others, were among the ornaments of his court; and the university of Jena experienced his patronage. In 1816, he granted his people a representative constitution. The jubilee of his accession to the government was celebrated, in 1825 with delight by his grateful subjects.—He was succeeded by his son *Charles Frederic*, born in 1783, who married a sister of Alexander, emperor of Russia.—His second son, *Charles Bernard*, born in 1792, is major-general in the service of the king of Netherlands. He married the sister of the duke of Saxe-Meiningen, another of whose sisters is the wife of William IV of England. He served under Napoleon, and obtained the cross of the legion of honor on the field of Wagram. In 1825, he travelled through the U. States, and has published an account of his travels, which has been translated into English—Travels in the United States (Philadelphia, 1828).

Weimar, Bernard, duke of. (See *Bernard.*)

Weinsberg; a town in the circle of the Neckar, in Würtemberg, on the Sulm, with 1720 inhabitants. The ruins of the castle of Weibertreu (Wives-faith) recall to mind its siege, in 1140, when the emperor Conrad III granted free egress to the women only, who were allowed to carry off the best of their possessions on their back. The women came out, each carrying her husband on her back. The emperor pardoned the men. (See *Guelphs.*)

Weishaupt, Adam, born at Ingolstadt, in 1748, studied at the same place, became, in 1772, *professor extraordinarius* of law, and, in 1775, professor of natural and canon law. As the professorship of canon law had, until then, always been given to ordained clergymen, the clergy attacked him, particularly as he, though a pupil of the Jesuits, showed himself their bitterest enemy, after the abolition of their order. He now formed a connexion with several able men, and strove to gain them over to his system of cosmopolitism; but, as he went to work openly, the public authorities could not be made to believe that his designs were dangerous. The Jesuits, therefore, attacked him the more bitterly in private. As a jurist, he obtained much fame: his lectures attracted students belonging to all the faculties; and he made use of this opportunity to propagate his cosmopolitism, and for this purpose founded the order of *Illuminati* (q. v.), which afterwards became so famous. Weishaupt lost his professorship, in 1785, in consequence of the persecutions of the Catholic clergy and his own imprudence, and went to Gotha, where he published several works—1. Complete History of the Persecution of the Illuminati in Bavaria; 2. System of the Illuminati; 3. Description of the Illuminati; 4. Pythagoras, or Considerations on the Secret Art of Ruling; 5. Materials for the Advancement of the Knowledge of the World and of Men.

Weiss, Christian Samuel, professor of mineralogy in the university of Berlin, director of the royal mineralogical museum, member of the academy of sciences at Berlin, &c., one of the most distinguished mineralogists of the age, was born in 1780, at Leipsic, studied at the school and the university of his native city, and at the mining academy (q. v.) of Freiberg, in Saxony, where he was one of the most distinguished pupils of Werner. He subsequently made mineralogical journeys, examined the extinct volcanoes in the south of France, visited Paris, and attended the lectures of the celebrated Haüy (q. v.), then delivered private lectures in Leipsic, and, in 1809, was made *professor ordinarius* of natural philosophy at the same place, on which occasion he bublicly defended his dissertation *De indagando Formarum Crystallinarum Charactere Geometrico principali*. In this treatise, which he subsequently continued, the principles of a division of all the forms of crystals into certain systems are found. In 1811, he was made professor of mineralogy at the university of Berlin. He has formed, already, a number of good mineralogists, and developed the mathematical part of mineralogy according to a very natural method. In 1813, he wrote a treatise on the Natural Division of the Systems of Crystallization, printed in the Transactions of the academy of Berlin (of which he became a member in 1813) for 1814 and 1815. Mohs (q. v.) was also subsequently led to adopt such a division as the basis of all crystallography. Besides the writings already mentioned, he has written a series of treatises in the Transactions of the academy, and the society for the promotion of the natural sciences, in Berlin. His system of minerals is a natural one, in which the correct determination of the species and genus is the principal point. Though he adopts the form as a fundamental principle in determining the species, he, nevertheless, does not exclude the results of chemical investigation. As a geologist, he early adopted views of his own, and, with von Buch and others, believed, contrary to the opinion of Werner, that there are internal powers which have determined the character of the surface of the globe, and changed the mountain layers that previously existed.

Weisse, Christian Felix, a writer who has done much for the improvement of children, was born Feb. 8, 1726, at Annaberg, in the Saxon Erzgebirge. He went, in 1745, to the university of Leipsic, where he studied philology. There he became acquainted with Klopstock, Cramer, the Schlegels, and others. With Lessing he formed an intimate friendship, and wrote, in connexion with him, for the German theatre. In 1759, he went, as tutor of a young count, to Paris. He afterwards produced songs and other poems, plays, &c., and, in 1760, his Library of Polite Learning and the Fine Arts. In 1762, he was appointed tax-gatherer, which office he held till his death. After 1774, he ceased to write for the stage, and chiefly turned his attention to works for children. His Songs for Children, and his A B C Book were received with great applause. In 1775, he began his Children's Friend, which, within six years, went through five editions; and there are few Germans whose youth has not been delighted and improved by this book. His Correspondence of the Family of the Children's Friend was a continuation of this. He died in 1804. He has described himself with much candor in his Autobiography, edited by E. C. Weisse and S. G. Frisch (Leipsic, 1806).

Welcker, Frederic Theophilus, professor of archæology in the university of Bonn, was born at Grünberg, in Hesse-Darmstadt, in 1784. He studied at Giessen, and, in 1806, went to Rome, where he enjoyed the personal instruction of Zoëga (q. v.), which determined the character of his subsequent pursuits. In 1819, he published Zoëga's Life, Collection of his Letters, &c. (Göttingen, 2 vols.), a worthy monument to the memory of the distinguished Dane. His diligent study of the classics, and of the plastic remains of antiquity, is very apparent in his works, in which, sometimes, as in the works of Zoëga, the abundance of the matter is productive of obscurity. In 1809, he was appointed *professor extraordinarius* of archæology and Greek Literature at Giessen. In 1816, he was made professor at Göttingen. Since 1819, he has been one of the most distinguished professors of Bonn. Among his writings are the following:—Comedies of Aristophanes; On the Hermaphrodites of ancient Art, a treatise published in the Studies of Daub and Creuzer (1808, 4 vols.), with which he began a series of instructive antiquarian essays, published in Zoëga's Bassi Relievi of Rome (Giessen, 1811), Zoëga's Treatises (Göttingen, 1817), and in the Journal for the History and Explanation of Ancient Art (3 numbers, 1817 and 1818). Among his strictly philological works are his *Fragmenta Alcmani Lyrici* (Giessen, 1815); *Hipponactis et Ananii Fragmenta* (Göttingen, 1816); *De Erinna et Corinna Poetriis*, in the *Meletem.* (2d vol.) of Creuzer; and his *Theognidis Fragmenta* (Bonn, 1826); and particularly the excellent edition prepared by him, in connexion with Frederic Jacobs, of Philostratus and Callistratus (*Philostrati Imagines et Callistrati Statuæ;* Leipsic, 1823). Hermann (q. v.) has opposed his views on the trilogy of Æschylus, given in his Prometheus of Æschylus (1824), on account of which he wrote a supplement to that treatise in 1826. Another work, On a Cretan Colony in Thebes, the Goddess Europa and Cadmus (Bonn, 1824), is rich in the results of well-directed investigation. He was suspected, for some time, by the Prussian government, of being concerned in the liberal movements; and his papers were sealed up and taken from him, but, after some time, were restored.

Weld. (See *Wold.*)

Welding is the intimate union produced between the surfaces of two malleable metals, when heated almost to fusion and hammered. This union is so strong that when two bars of metal are properly welded, the place of junction is as strong, relatively to its thickness, as any other part of the bar. Only two of the old metals are capable of firm union by welding, namely, platina and iron. The same property belongs to the newly-discovered metals potassium and sodium. To weld bar iron to another piece of iron requires a heat equal to 8.877 Fahr.

Welding Heat, in smithery; a degree of heat given to iron, &c., sufficient to make any two bars or pieces of iron unite by a few strokes of the hammer, and form one piece.

Well, in naval affairs; an apartment formed in the middle of a ship's hold, to enclose the pumps from the bottom to the lower deck. Its use is to defend the pumps from damage, and prevent the entrance of ballast, &c., which would otherwise choke the tubes in a short time, and render the pumps incapable of service. By means of this enclosure, the artificers may, likewise, more readily descend into the hold to examine or repair the pumps, as occasion requires.

Welland Canal. (See *Inland Navigation.*)

Wellesley, Richard Colley Wellesley, marquis of, eldest son of the earl of Mornington, was born in 1760, and educated first at Eton and afterwards at Oxford, where he was distinguished for his classical attainments. In 1784, he succeeded to his father's title, and next year was returned member of parliament for Beeralston, in Devonshire, and, having attached himself to Mr. Pitt, was united in the commission of the treasury. A financial speech which he made in the house of commons having attracted considerable notice, he became a favorite of the king, and at the next election was returned for New Windsor, which was called the king's borough. He was also made a commissioner for India affairs. In 1797, he was created an English baron, by the title of baron Wellesley, and was nominated to the high office of governor-general of India, for which country he immediately sailed. After his arrival there, he soon began to act with vigor. The period was, indeed, a critical one. Bonaparte had accomplished the conquest of Egypt, and was supposed to meditate an attack on the Indian possessions of England, in which the French encouraged Tippoo Saib, the sultan of Mysore, to assist. In this emergency, the first step taken by lord Wellesley, was to secure and fortify the island of Perim, which commands the entrance of the straits of Babelmandel; the next was to open a negotiation with Tippoo, to induce him to remain neutral. The sultan, however, was so elated by the prospect of such formidable aid as would enable him to subdue or humble the British, that he treated the overtures of his lordship with neglect. Lord Wellesley determined, therefore, to strike an immediate blow against him; and, accordingly, the army under general Harris was ordered to advance rapidly towards Seringapatam. After a siege of a month, the capital of Mysore was taken by assault; the sultan was slain (see *Seringapatam*, and *Tippoo*), and his dominions were partitioned. For this service, his lordship was raised to the dignity of an Irish marquis. In 1801, he despatched a considerable force up the Red sea, to assist in wresting Egypt from the power of the French. He next turned the British arms against the Mahrattas, and, after a hard struggle, conquered the whole country between the Jumna and the Ganges, and compelled Scindiah and the rajah of Berar to make peace. (See *Mahrattas.*) In 1805, he was recalled, at his own request, with a pension of £5000, and replaced by lord Cornwallis. The opponents of lord Wellesley censured his administration as enormously expensive, not to say extravagant (he added 12,000,000 to the debt of the East India company), and accused him of being guilty of great injustice to the native powers, particularly to the nabob of Oude; while, on the other hand, his partisans urged that the critical circumstances of the time compelled a vast expenditure, and that his conduct to the Indian princes was justified by their persevering hostility. Mr. Paull presented articles of impeachment against him to the house of commons, but they were not followed up; and a vote was obtained in the marquis's favor. When, in 1807, the duke of Portland became minister, the king wished lord Wellesley to be secretary of state; but he did not accept the office. In 1809, he went as ambassador to Spain, and evinced his usual ability in negotiation. On the death of the duke of Portland, he accepted the office of secretary of state, and showed therein great attachment to the Spanish cause. In 1812, he resigned his place, being dissatisfied, it was thought, that he was not made first lord of the treasury, when Mr. Perceval was elevated to that high office. The prince regent was anxious to retain lord Wellesley, but could not accomplish it. From that period, his lordship continued in opposition for several years. During the time that he was out of office, he brought forward a motion in favor of the Irish Catholics, which was lost by only a small majority. In 1822, he was appointed lord-lieutenant of Ireland, and held this post till 1828, when he was succeeded by the marquis of Anglesea. In 1794, the marquis married a French lady, named Roland, by whom he had had several children; but after their marriage, they ceased to live together. She died in 1816; and, in 1825, the marquis married Mrs. Patterson (whose maiden name was Caton), granddaughter of the late Charles Carroll. He is the author of Substance of a Speech in the House of Commons, on the Address (1794); Notes relative to the Peace concluded with the Mahrattas (4to., 1804), in which he has given a succinct history of Indian affairs; Letters to the Government of Fort St. George, relative to the new Form of Government established there (1812); and Letters to the Directors of the East India Company, on the India Trade (8vo., 1812.)—His brother *Henry* (lord Cowley), born in 1773, accompanied the marquis to India, in quality of secretary, and, in 1802, was nominated governor of Oude, by the marquis, which gave much offence to the company's old servants. In 1807, he was elected member of parliament, and made second secretary to the treasury, under the duke of Portland, but quitted both places in about two years, on being appointed envoy extraordinary to Spain. He was then also admitted of the privy council, and, soon after, was made knight of the Bath, and appointed ambassador. While in this situation, he had some extraordinary honors conferred on him by the king of Spain, but, in 1821, was recalled, and the next year sent to Vienna. In 1828, he was created a baron by the title of lord Cowley.—Another brother, *William*, born in 1763, takes the name of *Pole* from a rich relation, who, dying in 1778, made him heir to a large fortune. He was created baron in 1821, by the title of Maryborough, and has held several lucrative posts.

Wellington, Arthur Wellesley, duke of, fourth son of the earl of Mornington, and brother of marquis Wellesley, was born in Ireland, in May, 1769. He was first placed at Eton school, and then sent to the military school of Angers, in France. He entered into the army as ensign of the forty-first regiment, and, by interest and purchase, became, in 1793, lieutenant-colonel of the thirtieth regiment of foot. The next year, he accompanied lord Moira to Ostend, and commanded a brigade in the retreat of the duke of York through Holland. In 1796, he embarked for the East Indies; but the fleet which he was on board of being driven back by contrary winds, the destination of the regiment was altered, and he was sent on the recruiting service, to Ireland. In 1797, he accompanied his brother, lord Wellesley, to India, and was employed in the attack on Tippoo, and at the capture of Seringapatam. After this conquest, he was named one of the commissioners to fix the divisions of the territory, and was appointed, by his brother, governor of Seringapatam. He had soon the good fortune to defeat an India adventurer, named Dhoondiah Waugh, and, a short time after, was made major-general. He was next employed, with 12,000 men, in the war of the Mahrattas (q. v.), to support the Peishwa; and he advanced to Poonah just in time to save it from destruction. The forces of Scindiah and the rajah of Berar having been joined by Holkar, he attacked them at Assaye, gave them a complete defeat, and compelled them to submit to such a peace as the English chose to dictate.—See Thorn's *Memoir of the War in India, from* 1803 *to*

1806 (London, 1817).—For this he was honored with the order of the Bath; and he returned to England in 1805. On his return, he married a lady of the family of lord Longford, to whom he had been previously engaged. Soon after this, he commanded, for a short time, a brigade under lord Cathcart, in Hanover. The command of the fifteenth regiment was next bestowed on him. He now, for a while, devoted himself to civil occupations, and was sent to Ireland as secretary of state, under the duke of Richmond. He next accompanied lord Cathcart in his expedition to Copenhagen. The houses of parliament having voted thanks to the officers on this service, sir Arthur, who was then returned member of parliament for Newport, in the Isle of Wight, was thanked by the speaker, in his place in the house. In 1808, he received orders to sail for the Peninsula, which he reached shortly after the defeat of the Spanish generals Cuesta and Blake. After a conference with admiral Cotton, he landed at the mouth of the Mondego river, and, being joined by general Spencer, with 5000 men, marched towards Lisbon. The twenty-first of August, he fought the battle of Vimeira (q. v.); but sir Hugh Dalrymple, arriving, took the command, and made the convention of Cintra. Sir Arthur Wellesley returned to England, and, in 1809, was again sent to Lisbon, with more troops, and the commission of commander-in-chief. He then marched for Oporto, from which he drove marshal Soult, and, entering Spain, fought the battle of Talavera de la Reyna, in which he foiled the French in all their attacks on his position, but was obliged to move off the next morning, and leave his sick and wounded to the mercy of the enemy. (See *Spain*, and *Soult*.) He was, however, for this exploit, created a viscount, and received the thanks of parliament. In 1810, Masséna, with a formidable army, entered Portugal, in the full confidence of driving the English army from that country. On this occasion, lord Wellington adopted the defensive plan suggested by Dumouriez, in a work on the subject. He first withdrew to the position of Busaco (q. v.), where he was attacked by the French, who were repulsed with mutual slaughter. The position of Busaco being rendered untenable by the wrong movement of a corps on his left flank, he fell back to the lines of Torres Vedras (q. v.), which had long been constructing. Masséna (q. v.) advanced, but was, from the impregnable strength of the lines, obliged to remain six months before them inactive, during which his convoys were cut off by the Spaniards. He then, at length, made a most masterly retreat, and lord Wellington blockaded Almeida; but Masséna found means to draw off the garrison, after a battle at Fuentes d'Onor, in which his lordship had some advantage. In June, his lordship besieged and assaulted Badajoz, but was repulsed with loss. He soon after passed the Tagus, to oppose Marmont (q. v.), who had succeeded Masséna; and he was successful in taking Ciudad Rodrigo by storm. In consequence of this success, the regency of Spain bestowed on him the title of duke of Ciudad Rodrigo, and the rank of a grandee of Spain. The English parliament had before settled on him £2000 a year, and they now gave him a second £2000, and the prince regent made him an earl. Having taken Badajoz, in a second attack, he advanced to Salamanca, defeated Marmont, and pursued the French to Burgos, which he besieged. For this he was rewarded with £200,000 and the title of marquis. He had already been created marquis of Torres Vedras, by the Portuguese government. Burgos, however, obstinately held out, and thus gave time to the French to reinforce the western army of Portugal, and to march the army of Soult from the southern provinces. By this means the enemy were rendered too powerful to allow of his maintaining his ground; and he accordingly raised the siege of Burgos, and commenced his retreat, during which he was considerably harassed by the French, who took his heavy artillery and the greater part of his baggage. In 1813, after Napoleon's disasters in Russia, and the best French troops in Spain had been replaced by conscripts, he repaired to Cadiz, to make arrangements with the regency of Spain, who placed the whole of the Spanish army under his command. The remnant of the French army was encamped on the Douro; he, however, made good the passage, turned their position, and they retreated to Burgos, then to Vittoria (q. v.), where he intercepted them, May 13, 1813, and took their baggage, artillery, and a great number of prisoners. He was now raised to the rank of field-marshal, and the Spanish government created him duke of Vittoria. He next besieged Pampeluna and St. Sebastian, and repulsed marshal Soult in several attacks which that general made to relieve them. Lord Wellington then forced the passage of the Bidassoa, and entered France. Soult endeavored to impede his march, but was repulsed on several occasions; and at Toulouse the last battle was fought.—See Napier's *History of the War in the Peninsula* (4 vols., 1828—1832).—The peace immediately followed, and the return of the Bourbons. Wellington was created a duke, and returned to London, after an absence of five years, and again received the thanks of the houses of parliament, who voted him a gift of £400,000. In July he was nominated ambassador extraordinary to France, and was then sent to the congress at Vienna. While he was there, Napoleon escaped from the isle of Elba. He was instantly named, by the allied sovereigns, generalissimo of the European troops. He fixed his head-quarters at Brussels, and issued a proclamation. Hostilities commenced, and Napoleon, after having defeated the Prussians at Ligny, was completely routed at Waterloo, by the fortunate arrival of Bülow and Blücher. (See *Waterloo.*) Wellington then advanced to Paris, and an end was put to the war under the walls of Paris.—See Sherer's *Military Memoirs of the Duke of Wellington* (2 vols., London, 1832).—The parliament of England now voted him a further sum of £200,000; and the sovereigns of Europe all bestowed on him rewards and honors. He afterwards commanded the army of occupation in France, and was at the congress of Aix-la-Chapelle, in 1818, where he was attended by a guard of honor, like a prince of the blood. In 1822, he was British minister plenipotentiary at the congress of Verona, and, in accordance with the policy of Canning, refused to participate in the measures of the powers against Spain. In 1826, he was sent to St. Petersburg to congratulate Nicholas on his accession to the throne. On the appointment of Canning to the premiership, in 1827, Wellington resigned his seat in the cabinet, with the other ministers opposed to Catholic relief (see *Catholic Emancipation*); and, in 1828, having overturned the Goderich administration, which had given him the important post of commander-in-chief of the army, he himself assumed the premiership, although, at the previous session of parliament, he had declared his entire unfitness for high civil office. In December, 1830, he was obliged to give way, in turn, to the present whig ministry. Such is a rapid sketch of the forty-years' public life of this distinguished man, as a general, a diplomatist, and a minister. The details of his history and conduct in these different characters are too well known to need repetition.*

Wells; a city of England, in Somersetshire, nineteen miles south-west of Bath, 121 west of London: lon. 2° 50′ W., lat. 51° 11′ N.; population, 6649. United with Bath, it forms a bishop's see. It is situated in a diversified and picturesque country, having fertile and extensive meadows to the south, east and west. It is small, compact, generally well built, and contains one of the most magnificent cathedrals in England (381 feet long, 131 broad, with a quadrangular tower 178 feet high). It receives its name from a remarkable spring, called *St. Andrew's well* (vulgarly *bottomless well*).

Welser; an old patrician family in Augsburg, now extinct. A *Julius Welser* is mentioned under the emperor Otho I, who was made a noble, in 959, on account of his services in the war against the Hungarians.—His son *Octavianus* settled in Augsburg; and from him sprung the family which became so famous.—*Bartholomew Welser* was privy counsellor of Charles V, and so wealthy that, with the family of the Fugger, he lent 1,200,000 florins to the emperor. With the consent of the emperor, he equipped, in 1528, three vessels in Spain, which sailed under the command of Ambrose Dalfinger, of Ulm, to America, and took possession of the province of Venezuela, which the emperor made over to Welser as a pledge. 480 Germans accompanied this expedition to Venezuela, in order to settle there; but their avarice is said to have involved them in quarrels with the natives, of whom they destroyed great numbers, and they were at length cut off themselves. The Welser family remained, nevertheless, twenty-six years in possession of Venezuela; but, after the death of Charles V, the Spaniards deprived them of it. During the same period, the Welsers, together with some merchants of Nuremberg, sent a vessel to the East Indies, in order to seek new channels of commerce. The journal of this journey of discovery is said to be still in existence.—The celebrated *Philippina Welser* was niece of the above-mentioned Welser, and daughter of his brother Francis. She had received an uncommonly good education, and was of great beauty, so that Ferdinand (whose father subsequently became the emperor Ferdinand I) fell in love with her, in 1547, in Augsburg. She refused all the offers of the young duke (then but nineteen years old), except on condition of marriage. The ceremony was privately performed, in 1550, without the knowledge of his father, or his uncle Charles V. The archduke Ferdinand was much incensed when he heard of it, and, for a long time, refused to see his son. In foreign countries, this *mesalliance* also excited much attention. It was not till after eight years that the father was reconciled. Philippina died, thirty years after the marriage, at Inspruck, in 1580. The archduke, her husband, honored her memory by a medal, with the inscription *Divæ Philippinæ*. Of her two sons, the eldest, *Andrew*, became cardinal; the second, *Charles*, distinguished himself in the wars in Spain and Hungary, and died, in 1618, without leaving any children.

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* He was created baron Douro of Wellesley in the county of Somerset, and viscount Wellington of Talavera, and of Wellington, in 1809; earl of Wellington in 1812; marquis of Wellington in 1812; marquis of Douro and duke of Wellington in 1814. He is also duke of Ciudad Rodrigo, and a grandee of the first class in Spain; duke of Vittoria, marquis of Torres Vedras and count Vimeira in Portugal, and prince of Waterloo in the Netherlands. He is likewise knight of the noble order of the garter, knight grand cross of the Bath, &c., &c. Previous to the change of ministry in 1830, his grace was at once field-marshal in the army; colonel of the royal regiment of horse-guards; colonel-in-chief of the rifle brigade; constable of the Tower; prime minister (first lord of the treasury); a lord of trade and plantations; commissioner for the affairs of India; lord-warden of the Cinque Ports; lord-lieutenant of the county of Hants, &c., &c., and, including his pensions, salaries, and the interest on grants, in the receipt of £48,000 per annum from the public. In addition to these honors and distinctions, he was field-marshal in the Portuguese, Spanish, Netherlandish, Austrian, Russian and Prussian service. The king of Portugal gave him a service of plate of the value of about $700,000; the emperor of Austria, and the kings of Prussia and Saxony, splendid services of Vienna, Berlin and Misnian porcelain; the city of London a shield of massive silver, upwards of three feet in diameter, with representations of his victories in relief, &c. His eldest son and heir, Arthur, marquis of Douro, was born in 1807, and his other son, Charles, in 1808.

Wen; an encysted tumor. Encysted tumors are formed, in the midst of the cellular substance under the skin, of that which separates the muscles, or even of that which enters into the structure of the different organs. These tumors are comprehended in a membrane called a *cyst*. The causes of their formation are unknown, but a strongly-marked tendency to such swellings exists in particular individuals, which leads to the suspicion of constitutional causes. An encysted tumor, in its commencement, is always exceedingly small, and perfectly indolent; and it is often many years before it attains a considerable size. These swellings are usually spherical, except when this form is altered by the disposition of the surrounding parts. Practitioners are not acquainted with any effectual means of stopping the growth of them. The best mode of treatment is amputation of the whole swelling.

Wenceslaus (*Wenzel*), emperor of Germany (frequently called only *king* of the Germans, because he was not crowned in Rome), and king of Bohemia, of the house of Luxemburg, eldest son of Charles IV (q. v.), was born in 1361. The lawless state of Germany, at that period, might have bid defiance to the talents and spirit of the greatest ruler; how much more to a Wenceslaus! At the age of two years, he was crowned king of Bohemia. When six years old, he infeoffed a duke, who kneeled before him, at the command of his father. At the age of ten years, he was married. Two years later, he was invested with the mark of Brandenburg, and made to take part in state affairs; and he was hardly eighteen years old when he succeeded his father (in 1378) on the imperial throne. Of the admonitions which his father gave him shortly before his death, he disregarded the most important—"Keep the pope, the priesthood and the Germans your friends." Pride and cruelty were the predominant traits of his character; and his inclinations led him to low sensuality. Perhaps his conduct may be in part attributed to the consequences of an attempt to poison him, which was followed by a disease of the liver, attended with a burning thirst. Two circumstances rendered his situation particularly difficult. In the beginning of his reign, the schism in the church became peculiarly glaring, in consequence of the election of two popes, and had the most injurious influence on political affairs. The abominable *jus manuarium*, or right of private war, was universal in Germany, owing to the want of civil order, and of an energetic administration. Private leagues were formed to procure that redress of wrongs which the laws could not afford; and a confederation of the wealthy and powerful cities in Suabia and on the Rhine, opposed the jealous, arrogant and tyrannical nobility and princes, who, in various parts of Germany, also formed alliances. Wenceslaus, in the midst of his revelry and debauchery, looked supinely on the disorders of the empire, and seems to have secretly encouraged the great league of the cities, in order to weaken the power of the princes. At length the fear of seeing the royal authority almost annihilated by these leagues, induced him to endeavor to counteract them. In 1387, a violent war broke out between the confederated cities on one side, and the princes, counts and lords on the other, in which the cities were obliged to yield, after the battle of Döffingen. Wenceslaus remained at Prague; and it is said that he answered the deputies, who invited him to come to Germany to restore peace, in terms to the following effect: "I do not know that I am bound to reconcile the estates, as I did not cause their quarrels; and I fear the fate of the wolf, in the fable, who attempted to reconcile two quarrelling rams." At all events, he acted according to this principle. The defeats suffered by the cities obliged them to remain quiet, and Wenceslaus willingly fulfilled the wish of the members of the empire, to extinguish, by force, all debts due to Jews, for which all debtors were obliged to pay fifteen per cent. of the debts to the emperor, who was the legal protector of the Jews! In Bohemia, Wenceslaus was disliked on account of his preference of the Germans, and his arbitrary spirit. He alienated the nobility by exacting the restoration of the crown domains, which had been mortgaged to them, and excited general odium on account of the cruelty with which he acted in his disputes with the clergy. His brother, the king of Hungary, and his cousin, the margrave of Moravia, were hostile to him; and thus originated, in 1394, a conspiracy of the Bohemian nobles, who surprised him, and kept him prisoner. After some months he was released; but his authority was gone in Germany. He was accused of having made John Galeazzo Visconti duke of Milan for money, and thus diminished the territory of the empire. Dissensions broke out every where; and the part which circumstances compelled him to take in ecclesiastical affairs, contributed much to deprive him of the German crown. He united with France, to induce the popes, elected in Rome and Avignon, to resign, and to reëstablish peace in the church, by a new election; and he undertook, particularly, to induce Boniface to resign; but this pope had been recognised by most of the electors, and they were dissatisfied with the measure of Wenceslaus, particularly the archbishop of Mayence, who owed his elevation to this pope. At last the electors resolved to deprive him of the crown, but disagreed respecting who should succeed him; so that, in 1400, the electors of Mayence, Treves, Cologne, and the Palatinate, only, pronounced his deposition. Wenceslaus remained inactive, but, nevertheless, found several supporters, because most of the members of the empire were dissatisfied with the steps of those electors. His successor, Robert, could do as little to remedy the deep-rooted evils of the empire as Wenceslaus. The latter quarrelled again with his brother Sigismund, who took him prisoner, and kept him a year and a half in Vienna. Robert died in 1410, and Sigismund, to whom Wenceslaus resigned his claims, was elected emperor. He remained in possession of Bohemia, and was only disturbed by the commotions caused by Huss. He died of apoplexy, in 1419, upon hearing of the insurrection of the Hussites, after the execution of Huss (q. v.), whom he had endeavored to protect. Modern historians have attempted to find apologies for his conduct. Certainly all is not true which was said of him in his time, but his faults deprive him of all esteem.

Wends; the name given by the Germans to a particular branch of that great Sclavonic family, the settlements of which in the northern and eastern part of Germany, from the Elbe along the Baltic to the Vistula, and, towards the south, as far as Bohemia, were known as early as the sixth century. It included, 1. the Obotrites, in Mecklenburg, a powerful tribe, under their own kings. Henry the Lion, duke of Saxony, almost extirpated them in the twelfth century. 2. The Pomeranians and Wiltzians, from the Oder to the Vistula. Their princes united themselves with Germany in 1181, and did not become extinct until 1637. 3. The Ukers (Frontier Wends; see *Ukraine*), and other tribes in the five Brandenburg marks. Albert the Bear, margrave of Brandenburg, conquered and extirpated them, not because they were heathens, but because they were Sclavonians. 4. The Sorbians (more properly *Serbians*), between the Saale and Elbe: ancient Misnia, therefore, was called by the Bohemians, *Srbsko*. 5. Lusitzians (improperly *Lusatians*), in the margraviate of Upper and Lower Lusatia. The Serbians had their own lords, princes and kings, and extended their dominion over the whole of the present Osterland, Misnia, the two Lusatias, Anhalt, the Electoral Circle, and the southern part of Brandenburg. In the tenth century, German colonists became intermingled with them. The mountains, particularly, became peopled with Germans, because the Sclavonians preferred the plains, as more adapted to agriculture; hence, even now, the villages in the mountains have German names, but almost all places in the plains, Sclavonic names. In Leipsic, the Servian language ceased to be spoken in 1327, though many Sclavonic words have been preserved in the country. From the mixture of the Sclavonians with the Franks and Saxons, the Upper Saxon idiom was formed since the tenth century. Many German names have evidently come from the Serbes; those which end in *itz*, *ik*, *nik*, *enz*, as Nostitz, Maltitz, Gablenz, Lessing (said to be originally Lesnjk). Of the Lusatians only, considerable remains have been preserved, owing to their long connexion with Bohemia, and the toleration which they experienced. The dialect of Upper Lusatia approaches to the Bohemian; the Lower Lusatian more to the Polish. In imitation of the German, it adopted the article and several other peculiarities, as did also the Sclavonians bordering on Germany, in Stiria, Carinthia and Carniola. Of the state of their language before their conversion to Christianity, we know little. Even after that event they remained subject to the severest oppression: no light penetrated to them. It was not till after the reformation that they began to write their dialect. During the thirty years' war (q. v.), it was contemplated to eradicate their language, and German ministers were given to them: sixteen parishes actually became German. It was not till the eighteenth century that they were left unmolested in the use of their own language. The orthography was settled in 1689, by a mixture of Bohemian and German. In 1716, a seminary, for the instruction of the Wends, was established in Leipsic, and, in 1749, one in Wittenberg. A Wendish seminary for Catholics was also established in Prague. There is a complete translation of the Bible, a grammar, and several other books, in their language; yet the decrease of the Wendish, in Lusatia, is very great. In Pomerania, the last person who spoke that language died in 1404. Only between the Elbe and Iretze, a remnant of Obotrites (called *Polabes*, from *Labe*, Elbe, and *po*, dwelling) maintained itself till recent times; and, in 1751, the last religious service in Wendish took place in Wustrow. These Wends existed, indeed, in the latter half of the last century; but the government labored to destroy the peculiarities of language and customs by which they were distinguished from their German neighbors. The language was so ridiculed, that people became ashamed to speak it. Some customs and modes of dress still exist in many places, which remind us of the Wendish origin of their inhabitants, although German only is spoken there at present, as in Altenburg. The Wends were a warlike people, and waged war against the Germans, at different periods, from the seventh century, several times in connexion with the Bohemians, and, at a later period, with the Hungarians, until, in 934, Henry I defeated them, at Merseburg, and Otho in 948. The German kings then erected the margraviates of Misnia, Northern Saxony and Lusatia, to keep these Sclavonians in obedience. The religious foundations at Misnia, Merseburg, Zeitz, and Magdeburg, were also established, partly with a view to propagate the Christian religion among the Wends. They were driven from their towns to the villages; the prisoners of war were given to chapters, convents, and noblemen, as villeins. All possible means were used to make the Wends adopt the Christian religion, and to blend them into one people with the Germans. In 1047, Gottschalk established a Wendish or Obotritish kingdom, consisting of eighteen provinces, under the Saxon dukes and the German kings, and strove to introduce German civilization, but, for that reason, was murdered in 1066. His son Henry reëstablished the kingdom in 1105, which, at a later period, Knud, duke of Sleswic, received as a fief, after whose death it was broken up. The introduction of Christianity among the Wends was gradually effected, though traces of heathen worship long remained. The Wends of Lusatia at present occupy a tract extending from Löbau to the mark of Brandenburg. They are industrious, but, in consequence of their former oppression, suspicious and reserved. Their language enables them to make themselves understood by the Poles and Russians. In Leipsic, there is a society in which students from Lusatia practise preaching in Wendish. It is a curious fact, that only about three miles from Berlin there is a village called Rixdorf, inhabited by Wends, many of whom, though in constant intercourse with Germans, and going daily to the market of Berlin to sell their produce, nevertheless, were wholly ignorant of the German language until lately, when their unwillingness to intermarry with Germans has given way to more rational notions.

Wentworth. (See *Strafford*.)

Werf, Adrian van der, a Dutch painter, born near Rotterdam, in 1659, of poor parents, was first instructed in his art by Piccolett, a portrait painter, and afterwards became a pupil of Van der Neer. Having settled at Rotterdam, he obtained great reputation as a painter of portraits, and executed a piece for Steen, a rich merchant of Amsterdam, which procured him the patronage of the elector palatine. That prince, having visited Holland with his family in 1696, went to Rotterdam, and ordered Van der Werf to paint for him the Judgment of Solomon, and his portrait. The artist took the pictures to Düsseldorf when they were finished; and the elector wished to retain him in his service, but he only engaged himself for six months in the year, receiving a handsome pension. In 1703, he went to present to his patron his Christ carried to the Sepulchre, which is regarded as his best production. He was honored with knighthood by the elector, who treated him with great liberality, augmenting his pension, and bestowing on him many marks of his esteem. He died at Rotterdam, Nov. 12, 1722. Van der Werf was particularly noted for his small historical pieces, which are most exquisitely finished, and which are still in high request, though his reputation is not quite equal to what it was during his life.—His brother and pupil, *Peter van der Werf*, painted portraits and conversation pieces, and was a very able artist. He died in 1718, aged fifty-five.

Werner, Abraham Gottlob; a celebrated mineralogist, born in Germany, Sept. 25, 1750. His father was overseer of iron works in Upper Lusatia; and the son, being intended for the same employment, was sent, after some previous education at school, to the mineralogical academy at Freyberg. Thence he removed to Leipsic, where he applied himself to natural history and jurisprudence, but more especially to the former, which he found the most attractive. The external characters of mineral bodies attracted much of his attention; and, in 1774, he published a work on that subject, considered as the basis of his oryctognostic or mineralogical system. It has been translated into various languages, and adopted and commented on by other writers; but the author could never be persuaded to publish a new and enlarged edition. Soon after this publication, Werner was invited to become keeper of the cabinet of natural history at Freyberg, and to deliver lectures on mineralogy. In 1780, he published the first part of a translation of Cronstadt's Mineralogy; and, in his annotations on this work, he gave the first sketch of his mineralogical system, and published many descriptions in conformity with the methods proposed in his treatise on external characters. In 1791, appeared his Catalogue of the mineral Collection of Pabst von Ohain. Besides his lectures on mineralogy, he also delivered lectures on the art of mining, which he rendered peculiarly intelligible and interesting by his simplification of the machinery, and by drawings and figures. His system of geognosy, or geology, was unfolded only in his lectures; but those he caused to be written out by his approved pupils, and, revising them himself, he communicated authority to their manuscripts. Many parts of these lectures have been published in different countries. Werner himself likewise published some mineralogical papers in the Miner's Journal; and, in 1791, appeared his New Theory of the Formation of Metallic Veins, which was translated both into French and English. He was nominated counsellor of the mines of Saxony in 1792, and had a great share in the direction of the academy of mineralogy, and in the administration of public works. The cabinet of minerals which he had collected was unrivalled for its completeness and arrangement, consisting of one hundred thousand specimens. This he sold to the mineralogical academy, for about \$28,000, reserving the interest of \$23,000 as an annuity to himself and his sister, who had no children, and at her death to revert to the academy of Freyberg. He died, unmarried, in August, 1817. A knowledge of the Wernerian mineralogy was first introduced into England by Kirwan; but a more complete view of it is exhibited in professor Jameson's System of Mineralogy, 1804, second edition, 1817. As a geologist, Werner is scarcely entitled to the merit of originality, as his geognosy consisted more in the invention of a new language adapted to support a theory, than in the exhibition of novel facts, or the discovery of a new and practical method of investigation. (See *Geology*.) But the science of mineralogy is highly indebted to his labors; and in having given a definite and systematic arrangement of mineral bodies, showing their characteristic analogies, he has done that for the branch of natural knowledge he cultivated, which Linnæus did for the science of botany, and thus attached a permanent celebrity to his name. (See *Mineralogy*.)

Wesel; a fortified town in the government of Cleves, in the Prussian dominions on the Rhine, at the entrance of the Lippe into that river, fifteen miles northwest of Gueldres, seventeen east-southeast of Cleves; lon. 6° 37′ E.; lat. 51° 39′ N.; population, including the garrison, 12,000. It is strongly fortified, was once a Hanseatic town, and has considerable commerce, navigation and manufactures, particularly of spirituous liquors. It contains a gymnasium, a theatre, four parish churches, &c.

Weser, one of the large rivers of Germany, originates from the union of the Werra (the source of which is in Hildburghausen) and the Fulda, which rises in the grand duchy of Fulda. At Münden, in Hanover, they unite, and are called *Weser*, which is believed to be only a contraction of the original name of the Werra (*Wisaraha*, *Wesara*, *Wirraha*). The Weser passes through the Hanoverian principality of Göttingen, Brunswick, the principality of Calenberg, Schauenburg, the Prussian province of Westphalia, Hoya, Verden, Bremen, and the duchy of Oldenburg, and empties into the North sea, ten German or about forty-five English miles below Bremen, after having received several other rivers. The twenty-two tolls on the Weser are extremely harassing and injurious to internal commerce. One single toll, that of Elsfleth, which at present is abolished, produced annually 80—100,000 German dollars. The history of the exactions and injustice connected with the tolls of one such river would show how little regard has been paid to the interest of the people. In 1817, a project was formed for uniting the Weser and the Elbe. The most important cities on the Weser are Münden, Hameln, Rinteln, Minden, Nienburg and Bremen.

Wesley, John, the second son of Samuel Wesley, rector of Epworth, was born at Epworth, June 17, 1703. He received his school education at the Charter-house, whence he was removed to Christ-church college, Oxford. After taking his first degree, he was, in 1724, elected fellow of Lincoln college, and, in 1726, graduated master of arts. At this time, he was distinguished for his classical attainments, skill in dialectics, and talent in poetry. Soon after he was elected fellow, he was appointed Greek lecturer, and took pupils; and, in 1725, he was ordained by bishop Potter. For some time after his residence at Oxford, he was only distinguished as a grave, sedate young man; but after a while, the perusal of some devotional tracts, and more especially Law's Serious Call, induced him to consecrate himself more entirely to what he deemed the essentials of a holy life. In 1729, he associated with some friends of similar disposition, who met and read together the classics on week-days, and divinity on Sundays; but shortly after, their meetings became exclusively religious. This society consisted of fifteen members, who, from the strictness of their manners and deportment, were variously designated by the other students, but more especially obtained the name of *Methodists*, which appellation they themselves sanctioned and retained. (See *Methodists*.) His father wished him to make interest for the next presentation of his living of Epworth; but he was too much attached to Oxford, and the manner in which he was engaged, to listen to his advice. A mission to Georgia had soon after greater attractions, and, in 1735, he accepted the invitation of doctor Burton, one of the trustees for that newly-founded colony, to go over and preach to the Indians. He accordingly embarked the same year, in company with his brother Charles, two other missionaries, and several German Moravians. The disturbed state of the colony prevented all preaching to the Indians; and, although the colonists of Savannah were at first attentive to the ministry of Mr. Wesley, his notions were too high church for his hearers. He refused the Lord's supper to dissenters, unless they would be rebaptized, insisted upon immersion in the rite of baptism, and, by a variety of ascetical practices, excited an unfavorable opinion of his judgment. What most injured his reputation, however, was his conduct towards a young lady, whom it was expected he would marry, and whom he refused to admit to communion after her marriage with another person, without deigning to assign any reason. Legal proceedings were in consequence commenced against him, previous to the conclusion of which, after a consultation with his friends, he became convinced that "God called him to return to England;" on which he gave public notice of his intention to depart, and left Georgia after an abode of a year and nine months. On his arrival from America, he discovered that he, who had been voyaging to convert others, had never been converted himself; and he felt, as he observed, "a want of the victorious faith of more experienced Christians." This conviction appears to have been strengthened by a German Moravian missionary, with whom he much communed, until, at length, a sudden conversion occurred, by his own account, on the twenty-fourth of May, 1738, at a quarter before nine in the evening, while a person in a society in Aldersgate street was reading Luther's preface to the Epistle to the Romans. To strengthen his faith, he went over to Germany, and proceeded to Herrnhut. (q. v.) He returned in September, 1738, when he commenced the systematic labors which made him the founder of the great religious body of Methodists. He began to exhort and to preach, often three or four times a day, at the prisons and other places in the metropolis, and made frequent excursions into the country, where his followers became rapidly very numerous. His discourses were often attended with demonstrations of the effect produced on the hearers, such as swoonings, outcries, convulsions, and similar results of violent internal emotion and excitement. He soon after accepted the invitation of Whitefield, who had some time before commenced the practice of field-preaching, to join him at Bristol; and, in May, 1739, the first stone of a Methodist meeting-house was laid in that city. Some difficulties, which arose as to the liability of the feoffees, nominated, in the first instance, to the expenses of erection, by inducing Mr. Wesley to take it all into his own hands, laid the foundation of the unlimited power which he obtained over his followers. Whatever chapels were subsequently built by the connexion, were all either vested in him or in trustees bound to give admission to the pulpit as he should direct. It is thought that his original plan was to form a union of clergymen, in order to further his scheme of conversion by their joint efforts; but the dislike of ministers of the establishment to join in it, reduced him to the necessity of appointing lay preachers, and employing them as itinerants among the different societies of the persuasion. At the same time, he assumed the power of nominating those preachers, and thus, as the societies increased, his authority received indefinite augmentation. The opinions of Wesley, being derived from the Arminian theology, differed materially from those of Whitefield on the points of unconditional election, irresistible grace, and final perseverance; in consequence of which a coldness grew up between them, and a lasting separation between the societies over which they presided. Nothing so much favored the progress of Wesleyan Methodism as the strict and orderly discipline established by the founder, commencing from the small division of classes, and ending in the annual conferences of the numerous preachers. The whole was very wisely calculated to bind the society to each other. The society, in its infant state, had to contend with much popular hatred, sometimes fomented by persons in the upper ranks of society. The followers of both Whitefield and Wesley were, in the first instance, chiefly among the uneducated classes. In 1749, he married a widow of good fortune, which was, however, all settled upon herself; but the union was an unhappy one, and terminated in a final separation, in 1781. On the breaking out of the American disputes, he wrote a pamphlet on the side of government, entitled a Calm Address to the American Colonies, which produced a considerable effect among his own followers. When the contest terminated in separation, he took a step which appeared a renunciation of the principles of the Episcopal church, by ordaining preachers for America, by imposition of hands, and consecrating a bishop for the Methodist Episcopal church. By this step he offended many of the society, and especially his brother Charles; and it is asserted that he himself repented it, as likely to further that separation from the church, which, after his death, virtually took place. The approach of old age did not in the least abate the zeal and diligence of this extraordinary person, who was almost perpetually travelling, and whose religious services, setting aside his literary and controversial labors, were almost beyond calculation. Besides his numerous exhortations, he generally preached two sermons every day, and not unfrequently four or five, all which he was enabled to effect by very early rising and the strictest punctuality. His labors were continued to within a week of his death, which took place March 2, 1791, in the eighty-eighth year of his age. John Wesley had a countenance wherein mildness and gravity were very pleasingly blended, and which, in old age, appeared extremely venerable. In manners, he was social, polite and conversible, without any gloom or austerity. In the pulpit, he was fluent, clear and argumentative; often amusing, but never aiming at or reaching, like Whitefield, the eloquence of passion. His style in writing was of a similar description, and he seldom appeared heated, even in controversy. The works of John Wesley, on various subjects of divinity, ecclesiastical history, sermons, biography, &c., amounted, even in 1774, to thirty-two volumes, octavo. In addition to the accounts of Wesley by Hampton, Whitehead and Southey, there is a more recent life of him by Henry Moore.

Wesley, Charles, younger brother of the above, was born at Epworth, Dec. 18, 1708, educated at Westminster school and Christ-church, Oxford, where he graduated master of arts in 1732, accompanied his brother to Georgia, and also became a preacher in the Methodist connexion, for which he wrote hymns, now sung in their chapels. Some of his sermons have been printed; and his poetical compositions exceeded those of his brother, from whom he differed on various points.—His son, *Charles*, born in 1757, displayed, even in infancy, an astonishing genius for music. At the age of two years and three quarters, he astonished his father, by playing readily, and in correct time, a tune upon the harpsichord; with which instrument his mother, almost from his birth, had been accustomed to quiet and amuse him. It is a curious circumstance that he would never suffer her to play with one hand, but, even before he could speak, would place her other hand on the keys, to complete the harmony of the piece, by the addition of the bass. From the earliest moment of his performances, he always added a true bass to every tune which he played. At the age of twelve or thirteen, it was thought that no person could excel him in playing the works of Corelli, Scarlatti and Handel, to the study of which he had almost wholly confined himself for some years. He then visited London, and received instructions in composition from doctor Boyce; and under the inspection of that gentleman he published his first production, a Set of Six Concertos for the Organ or Harpsichord. He afterwards ranked among the first musical professors of England.

Wesseling, Peter, born at Steinfurt, 1692, an eminent critic, presided over the gymnasium of Middleburg, was afterwards a professor in the university of Franecker, and, at length, occupied the chair of eloquence at Utrecht. Besides other works, he published *Observationum variarum Libri duo* (Amst., 1727, 8vo.); *Probabilium Liber singularis* (Franecker, 1731, 8vo.); *Antonini Itinerarium* (Amst., 1735, 4to.); *Dissertatio Herodotea* (Utrecht, 1758, 8vo.); and a valuable edition of Herodotus, with annotations (Amst., 1763, folio). He died at Utrecht, in the year 1764.

Wessenberg,* Ignatius Henry von, a German ecclesiastic, of much interest on account of his dispute with the Roman see, was born of a family of high rank, received an excellent education, and, in 1802, was made vicar-general of the bishopric of Constance. In this sphere he labored zealously. He took great care of the education of the clergymen in the diocese, and encouraged them to publish communications of their experiences as pastors. He strove to give the German language its proper importance in the liturgy. According to an agreement with the authorities of the Swiss canton Lucerne, which, till 1815, was under the ecclesiastical government of the bishop of Constance, he began, in 1806, to abolish some convents, in order to establish seminaries for young clergymen, and a great alms-house. On all these accounts, the nuncios of Lucerne had long marked him as suspected, when, in 1814, his bishop, Dalberg, nominated him, with the consent of the grand duke of Baden, as his coadjutor, and successor in the bishopric. The Roman *curia* refused to confirm him; and when, after the death of Dalberg, the chapter of Constance elected him bishop, the pope immediately issued a brief, March 15, 1817, ordering the chapter to choose a man of better reputation. The German Catholics insisted that the chapter vicar does not need the confirmation of the pope, and that it cannot be refused to a coadjutor, except on account of disqualifying charges sufficiently proved. Moreover, it was provided in the concordates with the German princes, that their subjects, when accused before the pope, might defend themselves before judges selected from their own countrymen in Germany. Wessenberg was refused this privilege, and called upon to give up his bishopric immediately. He, therefore, set out for Rome, to defend himself, but could obtain no satisfaction. The grand duke declared that he would support Wessenberg, as long as no sufficient charges were proved against him, and laid the whole affair before the diet at Frankfort. At length the bishopric of Constance was dissolved, in 1827, by a concordate with the pope, and an archiepiscopal see erected in Freyburg, by which Wessenberg lost his place of vicar. He distinguished himself in the first chamber of the grand duchy of Baden. He is the author of an excellent history of popular schools in Germany (*Die Elementarbildung des Volks*, &c., Zürich, 1814), and several small ascetic works. He has also published two collections of his poems, and Christian Images, a Means of promoting the Christian Spirit (2 vols., Constance, 1826—27), a work in which he considers the connexion of the fine arts with Christianity.

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* Brother of the Austrian minister von Wessenberg, whose name is affixed to most of the endless London protocols, respecting the Belgian question, with that of Esterhazy, for Austria.

Wessex, that is, **West Saxony**; one of the most important of the kingdoms of the Saxon heptarchy in England, during the sixth, seventh and eighth centuries. Egbert, king of Wessex, founded the kingdom of England, by the union of the other kingdoms of the heptarchy. (See *Egbert*, and *England*.)

West, Gilbert, an ingenious author, was the son of doctor West, editor of Pindar's works, and was born in the year 1706. He was sent to Oxford, and afterwards obtained a commission in a cavalry regiment. He did not, however, long remain in the service, retiring to Wickham, in Kent, where he devoted his time to literary pursuits and the enjoyment of the society of his friends. The patronage of Mr. Pitt obtained him, in 1751, the situation of clerk to the privy council, he having previously held a deputy's place nearly twenty years. The treasurership to Chelsea college was afterwards added through the same interest. On the death of an only son, in 1755, his grief induced a paralytic affection, which carried him off in the following year. His Observations on the Resurrection were printed in 1747. His other writings are a poem on the Institution of the Order of the Garter, and a translation of some of the Odes of Pindar.

West, Benjamin, was descended from a respectable English family, belonging to the denomination of Quakers, who had emigrated to America in 1667. His father, John West, was a merchant, settled at Springfield, in Pennsylvania, where Benjamin was born, Oct. 10, 1738, being the tenth child. In his seventh year, he gave the first indications of his propensity for the pencil. As he was watching the sleeping infant of his eldest sister, it smiled, and, struck with its beauty, he sought some paper, and drew its portrait in red and black ink. The circumstances, however, in which he was placed, afforded him little aid in the developement of his talents. There were neither professors, paintings nor prints among the primitive settlers of Pennsylvania. For some time, he pursued his favorite employment with red and yellow colors (which he learned to prepare from some Indians who had roamed to Springfield), and indigo, given to him by his mother, together with brushes made of the hair of a cat. At length, a merchant named Pennington, who was his cousin, having seen his sketches, sent him a box of paints and pencils, with canvass prepared for the easel, and six engravings. The possession of this treasure almost prevented him from sleeping. He made all the necessary arrangements in the garret, where he commenced his labors with the dawn every morning, absenting himself entirely from school, until the inquiries of his master caused a search and discovery to be made. His mother found him in his *studio*; but her inclination to anger soon subsided on beholding his performance. Instead of copying servilely, as might have been expected, he had composed a picture from two of the engravings, telling a new story, and colored with a skill and effect which, in her eyes, were surprising. She kissed him with rapture, and procured his pardon from her husband and his teacher. Mr Galt, in his life of West, says that, sixty-seven years afterwards, he had the gratification to see this piece in the same room with the sublime picture of Christ Rejected; on which occasion the painter declared to him, that there were inventive touches, in his first and juvenile essay, which, with all his subsequent knowledge and experience, he had not been able to surpass. By degrees, the report that a boy, remarkable for his talent for painting, lived at Springfield, began to extend until it reached the ears of Mr. Flower, a justice of Chester, who, having looked at his works, obtained leave from his parents to take him, for a few weeks, to his house. Whilst residing with this gentleman, he derived great advantage from the conversation of the governess of his daughters, a young English lady, well acquainted with art, and with the Greek and Latin poets, and who loved to point out to the young artist the most picturesque passages. During his residence there, he painted the portrait of the wife of a lawyer of the neighboring town of Lancaster, the sight of which made people come in crowds to sit to him for their likenesses. He likewise executed a painting of the death of Socrates, for a gunsmith of Lancaster, who had a classical turn. On his return to Springfield, his future career became the subject of anxious consideration; and, finally, the matter was submitted, by his parents, to the wisdom of the society to which they belonged. A deliberation was accordingly held, the result of which was, that, though the Quakers refuse to recognise the utility of painting to mankind, they allowed the youth to follow the vocation for which he was so plainly destined. Soon afterwards, however, he took a step utterly at variance with the principles of the sect; but, strange as it may seem, he received neither admonition or remonstrance. This was to join the troops under general Forbes, who proceeded in search of the relics of the army of general Braddock. He was called home in a short time, by intelligence of the illness of his mother, and arrived only in time to receive the welcome of her eyes and her mute blessing. This was a severe blow, for he was devotedly attached to her. In his eighteenth year, he removed to Philadelphia, where he established himself as a portrait painter. His success was considerable; and, after painting the heads of all who desired it in that city, he repaired to New York, where his profits were, also, not insignificant. In 1760, by the kindness of some friends, he was enabled to proceed to Italy; and, July 10 of that year, he reached Rome. There he obtained access to some of the most distinguished personages, and first made himself known as an artist by a portrait of lord Grantham, which was attributed, for a time, to Mengs. After recovering from an illness of eleven months' duration, he visited the different cities of Italy for the purpose of inspecting the works of the great masters scattered through them. After his return to Rome, he painted a picture of Cimon and Iphigenia, and another of Angelica and Medora, which increased his reputation, and opened the way to those marks of academic approbation usually bestowed on fortunate artists. He was elected a member of the academies of Parma, Florence and Bologna, to the former of which he presented a copy of the St. Jerome of Correggio, of great excellence. In 1763, he went to London, intending to proceed to his native country; but, finding that there was a great probability of his success as a historical painter in that metropolis, he established himself there. His rise was rapid. He was introduced to the king, George III, whom he ever found a steady friend and munificent patron, and by whom, on his first presentation, he was directed to paint the picture of the departure of Regulus from Rome. Lord Rockingham made him an offer of a permanent engagement, with a salary of £700 a year, to embellish, with historical paintings, his mansion in Yorkshire; but he preferred depending on the public. He continued to be the king's painter until the monarch became superannuated, executing numerous works on historical and religious subjects, besides a few portraits. On the death of sir Joshua Reynolds, he had been elected president of the royal academy, and took his place, March 24, 1792. He delivered an address on the occasion, which was much applauded. When George III was first seized with the mental malady which incapacitated him for the duties of government, West was engaged in executing various religious pictures for the chapel at Windsor; but when that event occurred, he was informed that his labors must be suspended until further orders. On the recovery of the king, he was directed to go on with the works; but, on the recurrence of his illness, he was again ordered to suspend them. The story of his dismissal from court was spread abroad, with many aggravations, by the malevolence of enemies whom his success had created; and injurious statements were circulated respecting the sums which he had received for his pictures. In consequence, he published an account of what he had obtained, which was no more than a just compensation for his labors. During the peace of Amiens, he went to Paris, for the purpose of beholding the splendid collection, which Napoleon had placed in the Louvre, of the masterpieces of art, and was treated, in that city, with the greatest distinction by the most prominent persons of the imperial court. Soon after his return to London, he retired from his seat as president of the royal academy, where he had to encounter an opposition strong in numbers and ability; but, in a short time, he was restored to it by an almost unanimous vote, there being but one dissenting voice. In his sixty-fifth year, he painted the celebrated picture of Christ healing the sick, for the Quakers of Philadelphia, to aid them in the erection of an hospital in that town. It was exhibited in London, where the rush to see it was very great, and the opinion of its excellence so high that he was offered 3000 guineas for it by the British institution. As he was far from being rich, he accepted the offer, but on condition that he should be allowed to make a copy, with alterations, for Philadelphia. He did so; and the work is still exhibited in that city, where the profits arising from it have enabled the committee of the hospital to enlarge the building and receive more patients. The success of this piece impressed him with the belief that his genius appeared to most advantage in pictures of large dimensions. "As old age," says Allan Cunningham, "benumbed his faculties, and began to freeze up the well-spring of original thought, the daring intrepidity of the man seemed but to grow and augment. Immense pictures, embracing topics which would have alarmed loftier spirits, came crowding thick on his fancy; and he was the only person who appeared insensible that such were too weighty for his handling." He painted several works of great size; but few were willing to be purchasers of pictures which occupied so much room. Domestic sorrow mingled with professional disappointment. His wife, with whom he had lived for some sixty years in uninterrupted happiness, died Dec. 6, 1817. He did not survive her many years. Without any definite complaint, his mental faculties unimpaired, his cheerfulness uneclipsed, and with looks serene and benevolent, he expired March 11, 1820, in the eighty-second year of his age. He was buried beside Reynolds, Opie and Barry, in St. Paul's cathedral. West was in person above the middle size, of a fair complexion, and firmly and compactly built. He ever preserved a sedate sobriety of sentiment, and happy propriety of manners, the results of a devout domestic education. In disposition, he was mild, liberal and generous. He seriously impaired his fortune by his kindness to young artists, whom he endeavored to assist in every way. The advice which he gave them in his discourses from the president's chair was marked by good sense and affection. The following extract in relation to his paintings is from the biography of him, written by Allan Cunningham:—"As his life was long and laborious, his productions are very numerous. He painted and sketched upwards of four hundred pictures, mostly of a historical and religious nature, and left more than two hundred original drawings in his portfolio. His works were supposed, by himself, and, for a time, by others, to be in the true spirit of the great masters; and he composed them with the serious ambition and hope of illustrating Scripture, and rendering gospel truth more impressive. No subject seemed to him too lofty for his pencil: he considered himself worthy to follow the sublimest flights of the prophets, and dared to limn the effulgence of God's glory, and the terrors of the day of judgment. In all his works, the human form was exhibited in conformity to academic precepts; his figures were arranged with skill; the coloring was varied and harmonious; the eye rested pleased on the performance; and the artist seemed, to the ordinary spectator, to have done his task like one of the highest of the sons of genius. But below all this splendor, there was little of the true vitality; there was a monotony, too, of human character; the groupings were unlike the happy and careless combinations of nature; and the figures seemed distributed over the canvass by line and measure, like trees in a plantation. He wanted fire and imagination to be the true restorer of that grand style which bewildered Barry, and was talked of by Reynolds. Most of his works, cold, formal, bloodless and passionless, may remind the spectator of the sublime vision of the valley of dry bones, when the flesh and skin had come upon the skeletons, and before the breath of God had informed them with life and feeling. Though such is the general impression which the works of West make, it cannot be denied that many are distinguished by great excellence. In his Death on the Pale Horse, and more particularly in the sketch of that picture, he has more than approached the masters and princes of the calling. It is, indeed, irresistibly fearful to see the triumphant march of the terrific phantom, and the dissolution of all that earth is proud of beneath his tread. War and peace, sorrow and joy, youth and age, all who love and all who hate, seem planet-struck. The Death of Wolfe, too, is natural and noble, and the Indian Chief, like the Oneida warrior of Campbell, 'a Stoic of the woods, a man without a tear,' was a happy thought. The Battle of La Hogue I have heard praised as the best historic picture of the British school, by one not likely to be mistaken, and who would not say what he did not feel. Many of his single figures, also, are of a high order. There is a natural grace in the looks of some of his women which few painters have ever excelled."—See Galt's *Life and Studies of Benjamin West* (London, 1816 and 1820); and Cunningham's *Lives of Eminent British Painters*.

West India Apricot. (See *Mammee-Tree.*)

West Indies; the extensive archipelago which lies between North and South America, stretching from the coast of Florida, in the twenty-eighth degree, to the shores of Venezuela, in the tenth degree, of north latitude. It is divided by geographers into the Bahamas, composed of fourteen clusters of islands and 700 keys; the Great Antilles, comprising the four largest islands of the group, Cuba, Hayti, Porto Rico and Jamaica; the Lesser Antilles, stretching from Trinidad, in a westerly direction, along the northern coast of South America; and the Caribbee islands, stretching, like a great bow, from Tobago to Porto Rico, and subdivided into the three groups known under the name of the Virgin islands, the Leeward islands and the Windward islands. Each of the divisions above mentioned, and the most important individual islands, have been described separately. The whole archipelago, with the exception of some of the Bahamas, lies within the torrid zone. The name *India* was given to them by Columbus, who first discovered them, under the notion that they formed part of India, which was the object of his search. When the mistake was discovered, they retained the name, with the prefix *West*, to denote their geographical position. (See *America*, and *Columbus*.) The seasons, as in other tropical countries, are divided between the wet and the dry: the spring begins with May, when the foliage and grass become more verdant: the first periodical rains set in about the middle of the month, falling every day about noon, and creating a rapid and luxuriant vegetation. The thermometer at this season varies considerably, but its medium height is about 75°. After these rains have prevailed about a fortnight, the weather becomes dry and settled, and the tropical summer reigns in full glory. The heat at this time is tempered by sea breezes, the thermometer standing, on an average, at about 80°. The nights are now eminently beautiful: the moon is so brilliant that the smallest print is legible by her light; and, in her absence, her place is supplied by the brightness of the Milky Way, and the radiance of the planet Venus, which is such as to cast a shade. In the middle of August, the heat becomes excessive, and the refreshing sea breezes almost entirely intermit. This state of the atmosphere is succeeded by the autumnal rains, which become general in October, and pour down in cataracts. In the interval between August and October, the islands are visited by those tremendous hurricanes, which effect so much mischief. (See *Hurricanes*.) Towards the end of November, a change takes place: the weather becomes serene and pleasant, and northerly and north-easterly winds prevail, constituting the finest winter on the globe, from December to May. There are some exceptions to this general description, particularly in the large islands, which are often visited by refreshing land breezes from the interior highlands. (See the articles *Cuba*, *Hayti*, and *Jamaica*.) The islands abound generally in all tropical productions, as sugar, cotton, coffee, indigo, pimento, cocoa, medicinal drugs, tobacco, maize, guava, plantain, cacao, &c.; oranges, lemons, limes, pomegranates, citrons, pine-apples, &c.; manioc, yams, potatoes, &c. The mountains contain great varieties of trees, adapted for cabinet-work, ship-building, and other purposes in the arts, such as cedars, mahogany, lignum-vitæ, iron-wood, the Indian fig-tree, the calabash-tree, &c. The indigenous quadrupeds are the agouti (a sort of intermediate species between the rabbit and the rat, the peccary or Mexican hog, the armadillo, the opossum, the raccoon, the musk-rat, the alco or American dog, and several of the smaller varieties of monkey. Most of these species are now extinct in these islands. The iguana, a species of lizard, and the mountain crab, are also found here. The birds are remarkable for the brilliancy and beauty of their plumage: among them are the parrot, in many varieties, the scarlet flamingo, and the glittering humming-bird, with a great number of waterfowl of different kinds. Of the serpent tribe there are many varieties; but few, if any, are venomous: the alligator, and the brilliant and changeable gobemouche, or fly-catcher, are among the lizards.—The West Indies were discovered by Columbus, in his first voyage, in 1492: their subsequent history will be found under the separate articles. (See, also, *Buccaneers*.) The islands were inhabited, at the time of their discovery, by two distinct races of natives, the Caribs, occupying the Windward islands, and the Arrowauks, inhabiting Hayti, Cuba, Jamaica, Porto Rico, and the Bahamas. The former were warlike and fierce; the latter mild and peaceful, and much more advanced in civilization. (See *Caribbees*.) The languages of these nations were different.—See Edwards's

History of the British West Indies (3 vols., 1807); T. Southey's *History of the West Indies* (3 vols., 1827); and the works of Humboldt.—The West India islands are, with the exception of Hayti, still in the possession of European powers. (See *Colony*.)—1. *Spanish West Indies*. Spain has not retained a foot of ground on the American continent. The sole remnants of her splendid colonial empire in the new world, are the island of Cuba, the largest and finest of the West India islands, Porto Rico, with several dependencies, and Passage, Serpent, and Bieque or Crab islands, among the Virgin islands. The Spanish part of St. Domingo now forms part of the Haytian republic, and the islands of Margaritta, with Blanquilla, Tortuga, &c., belong to the republic of Venezuela.—2. *French West Indies*. Previously to the insurrection of 1792, St. Domingo was the most valuable French colony in the West Indies; but that event resulted in the establishment of the independence of that island, under the name of Hayti. Having sold Louisiana to the U. States, and ceded other colonies to the English, France now possesses only Guadaloupe and Martinique, with the small islands of Mariegalante and Deseada, in the West Indies.—See *Les Antilles Françaises, particulièrement Guadeloupe*, by Boyer-Peyseleau (3 vols., Paris, 1823).—3. *Danish West Indies*. The Danes possess only the small islands of St. Thomas, St. Croix, or Santa Cruz, and St. John, belonging to the Virgin islands.—4. *Swedish West Indies*. The Swedes possess only one colony, the small but fertile island of St. Bartholomew.—5. *Dutch West Indies*. To the kingdom of the Netherlands belong the islands of Curaçoa, St. Eustatius, Saba, and part of St. Martin, with the smaller islands of Aruba, Aves and Banaire. Curaçoa, formerly important as an entrepot, has lost much of its trade since the South American revolution, as the goods intended for the continent are forwarded direct to their place of destination.—6. *British West Indies*. The following table shows the British West India islands, with the exports and imports, and population for 1829:

	Whites.	Free Colored.	Slaves.	Exports to G. Britain.	Imports from G. Britain.
Antigua,	1,980	3,895	29,839	£285,500	£146,657
Barbadoes,	14,959	5,146	81,902	489,214	369,828
Dominica,	840	3,606	15,392	141,911	27,478
Grenada,	801	3,786	24,145	359,813	93,015
Jamaica,	No census; free population about 38,000		322,421	3,741,179	2,761,483
Montserrat,	330	814	6,262	40,958	8,302
Nevis,	700	2,000	9,259	78,278	25,223
St. Kitts,	1,612	3,000	19,310	192,280	97,234
St. Lucia,	972	3,718	13,661	157,533	51,505
St. Vincent,	1,301	2,824	23,589	414,548	99,891
Tobago,	322	1,164	12,556	158,385	51,368
Tortola,	477	1,296	5,399	33,239	5,666
Anguilla,	365	327	2,388		
Trinidad,	4,201	15,956	24,006	694,001	361,077
Bahamas,	4,240	2,991	9,268	17,915	51,524
Bermudas,	3,905	738	4,608	4,901	24,817

West Point; a village of New York, and military post, on the west bank of the Hudson, where it passes through the Highlands, in the township of Cornwall, in Orange county, fifty-three miles, by water, above New York, and one hundred below Albany. During the revolutionary war, this point was strongly fortified, and deemed one of the most important fortresses in America. The plain that forms the bank of the river is elevated 188 feet; and fort Putnam, a short distance in its rear, is 598 feet. Most of the former works are now in ruins. (For the treacherous attempt of Arnold to surrender this place to the British, see *Arnold*.)—The *military academy* consists of the corps of engineers; of one professor and an assistant professor of natural and experimental philosophy; one professor and one assistant professor of mathematics; one professor and an assistant professor of the art of engineering, in all its branches; a chaplain and professor of ethics; a teacher of drawing; a surgeon; and a sword-master. The number of cadets is limited to 250. They may be attached, at the discretion of the president of the U. States, as students to the military academy, and become subject to its regulations. They are arranged in companies of non-commissioned officers and privates, for the purposes of military instruction. There are four musicians to each company; and the corps is trained and taught in all the duties of a private, a non-commissioned officer, and an officer; is encamped at least three months in each year, and instructed in all the duties incident to a regular camp. Candidates for cadets must not be under fourteen, nor over twenty years of age, and must be previously versed in reading, writing and arithmetic, and must sign articles, with the consent of their parents or guardians, engaging to serve five years, unless sooner discharged. The pay of a cadet is sixteen dollars a month, and two rations a day. When any cadet has received a regular degree from the academic staff, after going through all the classes, he is considered as among the candidates for a commission in any corps, according to the duties he may be judged competent to perform; and if there is not, at the time, a vacancy in such corps, he may be attached to it at the discretion of the president, by brevet of the lowest rank, until a vacancy shall happen. The chief engineer is, *ex officio*, inspector of the military academy.

West Prussia; previous to 1772, called *Polish Prussia*, because it belonged to that part of Prussia which the crown of Poland had reserved, when it invested Albert of Brandenburg with the duchy of Prussia, in 1525. (See *Prussia*.) Dantzic, Thorn and Elbing were the principal towns of Polish Prussia. In 1772, Frederic II took possession of it (see *Poland*), with the exception of Dantzic and Thorn, which fell into his hands in 1793. By the peace of Tilsit, a part of it was ceded to France, and one portion of the ceded territory was annexed to the duchy of Warsaw, Dantzic being erected into a free city; but, in 1815, it was restored to Prussia by the congress of Vienna. It now constitutes a Prussian province, with a population of 792,207 souls, and is divided into the two governments of Dantzic and Marienwerder, with chief towns of the same name.

Westall, Richard, R. A., a native of Reepham, in Norfolk, was originally designed for the profession of the law, from which he was, however, drawn away by the seductions of the fine arts. Nature intended him for an artist, and he obeyed her dictates. He has for many years been a royal academician; and he holds an elevated rank among British painters. In the graceful and the beautiful he has few rivals. Besides his large pictures, Mr. Westall has produced almost innumerable smaller drawings. There are few modern popular works which have not been illustrated by his pencil. But his talent is not confined to the easel. He has also published a volume entitled A Day in Spring and other Poems (8vo., 1808), which affords proof of an elegant and cultivated mind.—His brother *William* has acquired eminence as a landscape painter. In his capacity of artist, he accompanied captain Flinders on his Australasian voyage of discovery, and made many masterly views, some of which were engraved, at the expense of the government, to illustrate the narrative of the expedition. With the view of obtaining still further improvement in this branch of art, Mr. Westall has also been engaged in other voyages. He has published, with descriptions, Views of Scenery in Madeira, the Cape of Good Hope, the East Indies, St. Helena and Jamaica (folio, 1811—1814); Views of the Lakes of Cumberland; Great Britain illustrated; and other works of equal merit.

Western Empire. Theodosius the Great, the last sole sovereign of the whole Roman empire, shortly before his death, divided, by his will, that immense extent of territory between his sons, Arcadius and Honorius, neither of whom was then of age, the former being eighteen years old, and the latter only eleven. Arcadius was to possess the East (see *Byzantine Empire*); his brother, the West; which comprehended Italy, Africa, Gaul, Spain, Britain, and half of Illyria. The empire, thus divided, was to be ruled in common, according to the direction of Theodosius, by the two brothers; but the reunion of both crowns upon one head was to remain lawful, for it had not escaped the penetrating mind of the emperor, that such a union could alone preserve the empire from ruin. At the death of Theodesius, January 11, 395, the guardians appointed for his sons entered upon their duties; the minister Rufinus, a Gaul, ruling for Arcadius, and the commander-in-chief, Stilicho, a Vandal (by marriage, a nephew of the late emperor), for Honorius. Rufinus was soon overthrown by the superior power of the general, and the plans of the latter were afterwards frustrated by the artifices of the court of Constantinople. Stilicho did, indeed, at the wish of Rufinus, divide the territories, the army, and the immense treasures left by the emperor; but he had no intention of yielding to him one half of the power of regent, as guardian to the young emperor of the East. The general had taken the command of the portion of the troops belonging to Arcadius, ostensibly to lead them to their proper commander, but in fact to secure to himself the command of all the forces of both portions of the empire. He had already reached Thessalonica, on the way to Constantinople, when Rufinus, dreading above all things his appearance in person, sent orders to him to halt, with the declaration that every step he took nearer the capital would be deemed an act of hostility. Stilicho was too prudent to disobey openly; but he was determined to remove out of his way a rival bold enough to oppose him, the general and deliverer of the imperial house. Gainas, a Goth, appointed by him general of the army of the East, received his orders; and Rufinus, in the presence of the army, already prepared for such an event, was assassinated on the field of Mars, before Constantinople, by an audacious soldier, under the eyes of the emperor Arcadius. But Stilicho was still farther than before from the object of his wishes. The sagacious courtier Eutropius, first chamberlain and principal favorite of Arcadius, and the empress Eudoxia, as remarkable for her talents as for her charms, were too well pleased with the power which they exercised over the weak prince, to allow the general an influence which might become dangerous to the favorite. Arcadius himself might also prefer the mild sway of the courtier, and of his beautiful wife, to that of the stern and able soldier. The dependence of the troops, and of their general Gainas, was secured; and after every means had been tried to injure Stilicho in the public opinion, a decree of the senate of Constantinople was procured, declaring him an enemy of the state, and all his possessions within the limits of the East forfeited. Attempts were made upon his life, but without success. This hostility against the regent of the Roman dominions in the West, gave the first signal for a division of the empire; and the wise views of the prudent Theodosius failed through the passions of a few men, and the weakness of his two young sons, who were unable to restrain them. Stilicho might perhaps have opened the way to the palace of Arcadius with the sword; but the terrible image of a civil war restrained the ambition of a man who certainly could not be charged with want of boldness. He now devoted himself entirely to the interests of his pupil Honorius, and to the government of his dominions. After the rebellious governor of Africa, Gildo, had been conquered by his own brother, the Moorish prince Mascezel, who revenged upon the tyrant the murder of his two children, and when he had himself ended his campaign in Greece against the Goths, Stilicho married his daughter Maria to her cousin, the emperor Honorius, then in his fourteenth year, in the year 398 of the Christian era. Ten years after, she died, as the historians say, still a virgin. Two years after this marriage, Alaric, king of the Visigoths, who had been prevented by Stilicho, in the year 397, from subduing Greece, resolved to avenge himself, and in the year 400 attacked Italy. Honorius fled from Milan to the castle of Asta (now *Asti*), upon the Tanarus. Being besieged there, he was on the point of a shameful surrender, when Stilicho, who had collected the scattered troops of the West, passed the Adda, and saved Italy. Alaric's camp at Pollentia, with the treasures collected in Greece, and Alaric's wife, became the prey of the conqueror. Nevertheless, the king of the Goths marched to Rome. In vain did Stilicho offer to restore his treasures and his wife, to induce him to retreat. Another battle was fought at Verona, in the year 403, and Alaric, after an entire defeat, in which he came near losing his life, saw himself obliged to leave Italy. In 404, Honorius, with the victorious Stilicho at his side, entered ancient Rome in triumph. The city received its emperor with rejoicings; and he perpetuated the memory of his presence by an edict suppressing the fights of gladiators at the public games. After a visit of some months, Honorius left Rome to live more securely in the fortified city of Ravenna. Two years later, Radagaisus, at the head of 200,000 Germans, Sarmatians, and other warriors, broke through the Alps, and advanced to Florence. Stilicho, who had been busily forming an army, without being able to prevent the ravages of the barbarians, hastened, with 40,000 men, to support the failing strength of the empire. He enclosed Radagaisus by a chain of forts, supplied the suffering Florence with means of subsistence, while the barbarians were exposed to hunger, and at last, in a general attack, completed by the sword what famine had begun. Radagaisus was taken and executed; the other prisoners were sold as slaves. Thus was Italy a second time delivered; but these repeated blows shook the tottering pillars of the empire. The remainder of the barbarian army invaded Gaul in 407, and the Germans, Vandals, Alans, and Suevi, soon became masters of seven Gallic provinces and of the Rhine, at that time without troops, as Stilicho had collected them to conquer in the fields of Florence. At the same time, the Roman army in Britain revolted, and determined to give themselves an emperor; but the third one chosen, Constantine, a common soldier, whose name was the cause of his elevation, alone maintained himself. His two predecessors, Marcus and Gratian, perished by the dagger, after a few months of power. Constantine landed at Boulogne, and the Gallic provinces, forsaken by Honorius and conquered by the Germans, willingly submitted to him. The Goth Sarus, who was charged to bring the rebel's head to Ravenna, thought himself fortunate, after an attack of seven days upon the lines of the sovereign of Gaul and Britain at Vienne, to lead back his exhausted army across the Alps, which now formed the barrier between Honorius and Constantine. The latter, shortly after, in 408, added to his new kingdom that of Spain (where he had experienced a slight resistance from four relations of the deceased emperor Theodosius, who lived there in opulence), and found the people well disposed to obey him. While these events were taking place between the Alps and the pillars of Hercules, others occurred at the court of Ravenna, which, after a series of misfortunes, of weaknesses, and of crimes, caused the final overthrow of the Western empire. Alaric, king of the Goths, had obtained the friendship of his former opponent, Stilicho, and, in consequence of a league of peace and amity with Honorius, was appointed commander-in-chief of the Roman army in Illyria. Stilicho had long contemplated the reunion of the eastern part of this territory with the western, and wished also to employ Alaric at a distance from Italy, by directing him to the gates of Constantinople. Alaric did, indeed, make a few movements in Thessaly and Epirus; but from Æmona he sent to Ravenna a demand for the repayment of large sums, expended in the service of Honorius, and proposed that some western province should be given to him as a permanent settlement for his people, promising to reduce Constantine to submission. After violent scenes in the Roman senate, Stilicho carried his motion, that a sum of 4000 pounds of gold should be given as a subsidy to the impatient creditor. But the secret anger of the senate at this act of condescension, which was caused by Stilicho's better knowledge of the power of the Goth, was shared, and perhaps excited, by the army. Honorius began to fear his old minister. It was now insinuated to him that Stilicho intended to place his son Eucherius upon the throne: he therefore gave his consent to the execution of a man who had been thus far the sole support of the tottering empire of the West. Stilicho lost his head in the year 408. His son, and several of his friends, underwent a similar fate; and Honorius even divorced his second wife, Thermantia, second daughter of Stilicho. From this time the weak monarch found himself in the hands of favorites, who could not estimate how great a service they had rendered Alaric, by causing the death of Stilicho. The foreign mercenaries, who had been faithfully devoted to the old general, revenged his death by passing over, to the number of 30,000, to the service of Alaric. The court at Ravenna was still deliberating how it should answer the demands of Alaric, when the latter crossed the Alps, the Po, pressed forward to Rimini, seized the passes of the Apennines, and, in 408, pitched his camp before Rome, which he surrounded so completely as to reduce the city to the most deplorable extremity for want of food. When an ambassador from Rome, sent to Alaric's camp, dared to declare to him that, if he rejected an honorable capitulation, the whole population would rush out against him, the ferocious warrior answered abruptly, "The thicker the grass, the easier to mow." After having demanded an enormous ransom for the city, he was asked, "And what will you leave us, if you demand this of us?" "Your lives," was the reply. He yielded, however, in some of his demands (see *Alaric*), and left the neighborhood of Rome, to take up his winter-quarters in Tuscany. Soon after, his army was increased to more than 100,000 men, his brother-in-law, Adolphus (Ataulf), having fought his way to him from the Danube, with a body of Goths and Huns. After fruitless negotiations for peace with Honorius, Alaric, who had taken possession of the port and town of Ostia, marched back to Rome, where, with the consent of the people and the senate, he named a new emperor, the prefect Attalus, and took him with him to Ravenna in 409. Honorius was on the point of throwing himself into the arms of his cousin, the young emperor Theodosius, at Constantinople, when he saw his throne saved by the fidelity and wisdom of his general Heraclian in Africa, by the fidelity of his body-guard, secured by largesses, and by the imprudent measures of Attalus. Alaric himself deposed Attalus, and sent the ensigns of his dignity to Ravenna. But Sarus, the general of Honorius, attacked Alaric, killed many of his followers, and declared him an enemy of the empire, and unworthy of the alliance of his emperor. He therefore returned to Rome, which he took in the night of the 24th of August, 410, one of the gates having been opened to him by the treachery of slaves in the town. The old capital of the world was pillaged, and in part burned. The treasures of the inhabitants, including many valuable works of Roman or Grecian art, became the prey of the barbarians. The churches and their treasures remained inviolate, by the special order of Alaric. This took place 1163 years after the building of the city by Romulus. Alaric now left Rome, and pillaged the south of Italy, where he died in 410. Adolphus, his successor, left Italy in two years, laden with the booty of Rome and of the southern provinces, after having received in marriage Placidia, the sister of Honorius. He went, in 412, to Gaul and to Spain, where he founded the kingdom of the Visigoths. Italy now breathed more freely. Rome arose proudly from its ashes; and the empire might perhaps have acquired new vigor, but for the weakness of its ruler, who lived eleven years after the departure of Adolphus. Gaul, indeed, was brought again under his power by the valor of the Roman general Constantius, who conquered Constantine, and obtained in recompense the hand of the widow of Adolphus, who had shortly before been murdered, and a share in the imperial power with Honorius. But Gaul, as well as Spain, was incessantly torn by domestic strife. Britain and Africa were lost, and the most unhappy discord reigned at Ravenna, where Placidia, a second time a widow, after the death of Augustus Constantius, was seeking to retain her power, when Honorius died, on the 24th August, 423, in the twenty-eighth year of his reign. Placidia carried the news to Constantinople, whither she had fled with her children, on account of the troubles at Ravenna. Under the protection of her nephew, Theodosius II, the young emperor of the East, the son of Placidia and Constantius, a child of but six years, was proclaimed emperor of the West, with the title of Valentinian III. Placidia was declared regent, and maintained her power as such during twenty-five years, in which the Western empire was continually brought nearer to its fall. Under Valentinian, the Vandal kingdom was founded in Roman Africa, by Genseric, king of the Vandals, in 428. The Western empire experienced a further loss in the cession of the western part of Illyria to the emperor of the East, by which Placidia obtained in marriage for her son, Eudoxia, the daughter of Theodosius and Athenais, in 437, and likewise indemnified the court of Byzantium for the expenses of a war against John, who had been private secretary of Honorius, and, after his death, had sought to obtain possession of the throne. Attila, king of the Huns, an ally of Genseric, now demanded the hand of Honoria, sister of Valentinian, with her inheritance. From Constantinople, whither she had been banished on account of her too great intimacy with her chamberlain Eugenius, she had offered to the king of the Huns her person and her claims upon Italy. A refusal immediately caused a war, which Attila began with an attack upon Gaul, and which ended with a great battle in the Catalaunian plains (near Chalons), in 450, when the Roman general Aëtius, together with Theodoric, king of the Goths, defeated the army of Attila, and might, perhaps, have entirely destroyed his power, if the political consideration of preserving in the Huns a counterpoise against the powerful Goths, had not induced Aëtius to retreat, and to separate from his ally. Thereupon Attila, to make good his claims upon the princess Honoria and her inheritance, broke into Italy, in 451, where he destroyed Aquileia, Padua, Vicenza, Verona and Bergamo. He had plundered Milan and Pavia, when Valentinian made proposals of peace by an embassy sent from Rome. The eloquence of the bishop of Rome, Leo I, who was at the head of the deputation, and the impression which his representations produced on Attila, induced him to refrain from the pillage of Rome, for a sum equal in value to the inheritance of Honoria. The beautiful Ildico made Attila forget Honoria, who, by imprisonment for life, atoned for her desire to become queen of the Huns. After the death of Attila, in 453, Valentinian might have ruled happily, had he been able to restrain his passions. The insinuations of the eunuch Heraclius made him suspect treachery in the pride of his general Aëtius. He therefore slew him with his own hand, in an altercation in the palace at Rome. He afterwards dishonored the wife of the senator Maximus. The injured husband avenged himself, and, on the 15th March, 455, Valentinian fell on the field of Mars, with his favorite Heraclius, under the swords of two followers of the murdered Aëtius, who belonged to the emperor's body-guard. The senator and patrician Petronius Maximus was hereupon proclaimed emperor by the senate and people. He married his son to the eldest daughter of the late emperor, and obliged Valentinian's widow, Eudoxia, to espouse him. After three months, he fell a victim to her hatred. Eudoxia, unable to obtain assistance from Constantinople, called upon king Genseric, in Carthage, to deliver her from an abhorred husband. Genseric landed in the port of Ostia. The flying Maximus was stoned in the streets of Rome, and thrown into the Tiber; but the capital, again saved, by the eloquence of Leo the Great, from fire and sword, was pillaged during fourteen days. All the monuments of former times, and all the wealth collected in forty-five years, since the sack of Alaric, became the prey of the conquerors, who likewise dragged to Africa, in their ships, many thousand Romans of both sexes. While these events were taking place in Rome, Avitus, a Gaul, prefect of Gaul under Valentinian, and appointed by the emperor Maximus general of the army in that country, a man of great talents and knowledge, supported by Theodoric, king of the Visigoths, received the crown of the Western empire at Arles, Aug. 15, 455, was acknowledged by the court of Constantinople, and also, though with secret dissatisfaction, by the senate and people of Rome. Theodoric, who went, as an ally of the Romans, to drive the Suevi from Spain, treated this country with the severity of a conqueror. Avitus rendered himself contemptible by his sensuality. Ricimer, one of the chief commanders of the mercenary troops, sent for the defence of Italy, after a victory over the fleet of the Vandals, returned, and was hailed by the people as their deliverer, and announced to Avitus, Oct. 16, 457, that his reign was ended. Avitus, condemned to death by the senate, fled, and perished in his flight. Majorian, formerly a soldier under Aëtius, was now raised by Ricimer to the imperial dignity, which he adorned by his virtue and his wisdom. Many useful regulations, especially with regard to taxes and public morals, distinguished his domestic administration, while, at the same time, he had the good fortune to defeat Theodoric, and also to obtain some advantages over Genseric, who had again attacked Italy. Nothing but the accidental loss of his fleet, in the year 460, prevented him from utterly destroying the power of the Vandals. But Rome was no longer worthy of such a ruler; and Majorian fell a victim to the general corruption, and the hatred of his enemies. Ricimer suddenly took from him the purple, and, five days after, his life, Aug. 7, 461, having spread the report that he had died of the dysentery. A certain Livius Severus was proclaimed emperor, but was put out of the way in 465. The supreme power, in the course of these five years and the two following, during which the throne remained vacant, was solely in the hands of Ricimer, who did not, however, dare to take the imperial title. But, being pressed by the Vandals, he soon saw himself obliged to ask the assistance of the emperor of the East; and the court of Constantinople made a league with Rome, on condition that it should be left to the emperor Leo to name the ruler of the West. The Grecian patrician Anthemius was appointed, and entered the capital with great pomp, April 12, 467. He gave his daughter in marriage to Ricimer, and many interests formerly divided seemed now reunited for the welfare of Rome. But the war with the Vandals was continued with varying fortune. It cost immense sums; and, soon after, a misunderstanding took place between Anthemius and Ricimer, the latter of whom had marched to Milan. By the mediation of Epiphanias, bishop of Pavia, a reconciliation was, indeed, effected between them; but, shortly after, Ricimer, at the head of a large army, reinforced by the Burgundians and Suevi, appeared before Rome, proclaimed the senator Olybrius, son-in-law to Valentinian, emperor of the West, March 23, 472, and took Rome, which Anthemius had defended for three months with a people devoted to his cause. Anthemius was put to death by order of his son-in-law. July 11, the city was pillaged, and filled with the blood of its noblest citizens; and Olybrius was placed upon the throne. In the next month, Aug. 20, the tyrant Ricimer died, and, soon after, the new emperor, Oct. 23. Rome now saw itself exposed to the arbitrary caprice of the barbarians, at whose head was Gundobald, nephew of Ricimer, a Burgundian prince. Gundobald named Glycerius, one of his soldiers, emperor of the West, but gave him so little support, that he was displaced by Julius Nepos, a nephew of Marcellinus, and governor of Dalmatia, who had been proclaimed by the court of Constantinople. Glycerius received, instead of the empire, the bishopric of Salona (474). Shortly after ascending the throne, Nepos made peace with the Visigoths, ceding to them the territory of Auvergne; but, soon after, a rebellion of the allied barbarians, under the command of their general Orestes, obliged him to fly from Ravenna to Dalmatia. The fugitive emperor lived there five years, until he was assassinated at Salona, at the instigation of Glycerius, who received, perhaps on this account, the archbishopric of Milan. Romulus Augustus, son of Orestes, was proclaimed emperor of the West, in 476. The fall of the empire was now at hand. The German troops, Herulians, Rugians, &c., revolted under their general Odoacer, when Orestes refused to divide among them a third part of the Italian territory. Pavia, where he sought to defend himself, was taken by storm; Orestes was executed; Augustus abdicated; Odoacer was proclaimed king by his army, and the senators of Rome sent an embassy to the emperor Zeno at Constantinople to declare "that it was neither necessary, nor desirable, that Italy should any longer be governed by an emperor of its own; and therefore they acknowledged, in the name of the people, that, the seat of the general government being transferred from Rome to Constantinople, they renounced the right of choosing an emperor for themselves. The republic, however, confiding in the virtues of Odoacer, humbly prayed that the emperor would grant him the title of patrician, and the administration of the Italian province." So low had Rome fallen! The emperor Zeno first gave the senate to understand that Nepos, who was still living in Dalmatia, was the lawful sovereign of Rome; but, soon after, pleased with the prospect of being sole ruler, he received the honors of the emperor of the West. The dethroned monarch, Romulus Augustus, whose first name had been changed, in Constantinople, to that of *Momyllus*, and whom the Romans called, in derision, *Augustulus*, was banished by Odoacer to the villa of Lucullus, in Campania, with a yearly pension of 6000 pieces of gold. Soon after, in the year 486, the Franks established their kingdom in Gaul. Thus the barbarians had risen in proportion as the spirit of the Romans had declined. From mercenaries of Rome they had become its allies; from allies its masters. King Odoacer ruled Italy for fourteen years. In the year 491, he was conquered by Theodoric, king of the Ostrogoths, who, in 493, founded the kingdom of the Ostrogoths on the classic ground of Italy. The name of Rome was all that remained of that empire, which had subsisted twelve centuries since its foundation by Romulus. In the history of the decline of this gigantic state, we see the causes of its fall. The prevailing corruption of manners destroyed all moral energy; and, from the time when Honorius ascended the throne, to the total overthrow of the empire, it was in a continual death-struggle. The system of dividing the empire, introduced by Diocletian, in 284, and completed by Theodosius, was the chief cause of its political weakness and final dissolution, which its moral degradation made it impossible to avert, especially as the increase of civilization among the barbarians who had broken into the empire, gave them an overwhelming power. A new order of things commenced: the feudal system, introduced by the Ostrogoths, Franks, and Lombards, altered the whole character of a state which for centuries had boasted of a republican constitution; and even the Roman language gave way before the total change in the spirit of the times; and its place was supplied by the Italian, French, Spanish and English tongues. (See *Byzantine Empire*.)

Western Islands. (See *Hebrides*, and *Azores*.)

Western University. (See *Pittsburgh*.)

Westerwald; a chain of mountains in the Prussian government of Coblentz, and the duchy of Nassau, connected with the Siebengebirge. (q. v.) The highest point is near Neuburg and Salzkirch, 2600 feet above the level of the sea. Flax is cultivated and cattle raised on the Westerwald. It affords iron, copper, excellent building stone, and great quantities of brown coal.

Westmacott, Richard, an eminent sculptor, the eldest son of a celebrated artist of the same class, was born in London, about the year 1774, and, having completed his preliminary studies, was sent abroad by his father, in 1792, before he had attained his eighteenth year. The first work of any importance that he was engaged in, on his return to his native country, was a statue of Addison, which was placed in Westminster abbey about the year 1806. In 1809, he was elected an associate of the royal academy, at which time he completed and erected, in St. Paul's cathedral, the monument of sir Ralph Abercrombie, and, subsequently, that of lord Collingwood in the same church. On his engagement to execute the bronze statue of the duke of Bedford, in Russell square, he personally attended to the whole management of the casting, and thereby acquired so much skill that, after erecting the statue of lord Nelson at Birmingham, and of Mr. Fox in Bloomsbury square, he was able to accomplish the colossal statue of Achilles erected in Hyde park, the greatest task in bronze-casting that has been achieved in any country. (See *Hyde Park.*) In 1814, Mr. Westmacott completed his national monument to William Pitt in Westminster abbey, which is a work of great talent. Among his works are the beautiful statue of a Peasant Girl, exhibited at the royal academy in 1819, which is part of a monument erected to the memory of the late lord Penrhyn; and the Hindoo Girl, for a work to be erected at Calcutta, in memory of Alexander Colvin. The statue in bronze of George III, at Liverpool, is also the work of Mr. Westmacott. His last work is a colossal bronze statue of Canning, which has just been erected (1832) in Palace yard. He was elected an academician of the royal academy of arts, London, in February, 1811; and he is also fellow of the society of antiquaries, and a member of the Dilettanti society.

Westminster, a city of Middlesex, England, the seat of government, the residence of royalty, and the centre of fashion, is now so united with London, that, in appearance, they form one city, and, in ordinary speech, are mentioned as one, though they have their separate jurisdictions. (See *London.*) Temple bar (q. v.) separates the two cities. Westminster lies to the west of London proper, with which it formerly communicated by means of the Strand, and forms the west end, or fashionable residence of the nobility and gentry. The existence of Westminster is derived from the foundation of the abbey. In 1259, Henry III granted to the abbot and convent of Westminster abbey a market and fair, which was the origin of the city and liberties of Westminster. At the general suppression of religious houses by Henry VIII, it was converted into a bishopric, which, however, was transferred to Norwich in 1550. The city of Westminster is comprised in two parishes, St. Margaret and St. John, and the liberties consist of seven parishes. The population of the city and liberties, which return two members to parliament, is, by the census of 1831, 202,090. Here are Westminster hall, abbey and school, St. James's palace, Buckingham house, Carlton house, Whitehall palace, &c. Westminster hall, memorable as the scene of so many interesting transactions, was built by William II, in 1097, and entirely repaired, with many alterations, by Richard II, in 1397. The hall exceeds in dimensions any room in Europe unsupported by pillars, being 270 feet in length, 90 in height, and 74 in breadth. Parliaments have often sat in the hall, and the courts of chancery, exchequer, king's bench and common pleas, have been held here, in different apartments, ever since the reign of Henry III. It has also been used for the trial of peers, and other distinguished persons, accused of high treason, or other crimes and misdemeanors, such as the late lord Melville, Warren Hastings, &c. In this hall, likewise, are held the coronation feasts of the kings of England. The old palace, at the south end of the hall, including the chapel of St. Stephen, is now used to accommodate the two houses of parliament. The interior of the house of lords is ornamented with tapestry, representing the destruction of the Spanish armada. Here are the star chamber (q.v.), and the painted chamber, used as the place of conference between the lords and the commons. Guy Fawkes's cellar, in which the gunpowder designed to blow up the two houses of parliament (see *Gunpowder Plot*) was deposited, is still examined by the usher of the black rod at the beginning of every session. (For the house of commons, see *Stephen's, St.*) Westminster abbey was built by Edward the Confessor, about 1050, on the site of an old Saxon church; but all that part which extends from the eastern extremity to the entrance of the nave was rebuilt in its present state by Henry III (1220—1269). The nave was carried on slowly afterwards; and the towers were not completed till the time of sir Christopher Wren, who finished them as they now are. The chapel, which bears the name of Henry VII, was built by that monarch in 1502, as a royal sepulchre. The general plan is that of a Latin cross, of which the nave is 234 feet long from west to east, and 90 feet wide. The transept is 225 feet long from north to south, and 100 feet wide

Beyond the transept, towards the east, are five chapels. In the poets' corner are the monuments of most of the distinguished poets of England; and in other parts of the abbey are those of distinguished statesmen, warriors, scholars and artists. The kings of England are crowned in the choir of the abbey. Westminster school was founded by queen Elizabeth, in 1590, for the education of forty boys, denominated the *queen's scholars*, who are prepared for the university. It is situated within the walls of the abbey, and is separated into two schools or divisions, comprising seven forms or classes. Besides the scholars on the foundation, many of the nobility and gentry send their sons to Westminster for instruction, so that this establishment vies with Eton in celebrity and respectability. They have an upper and an under master, with numerous assistants. Of these masters, many have been eminent in the walks of literature, particularly doctor Busby, so celebrated for his severity of discipline, and doctor Vincent, the author of the Voyage of Nearchus.—See the *History of the Abbey Church of St. Peter's, Westminster, its Antiquities and Monuments* (2 vols., quarto, London, 1812); and Neale's *History and Antiquities of Westminster Abbey illustrated* (1818 and 1823, with 61 engravings).

Westphalia; a name, 1. originally given to a large part of Germany; 2. to a duchy in Germany; 3. to one of the circles of the German empire; 4. to a kingdom; 5. to a province of Prussia,—of which we shall treat in the above order.

1. The name of *Westphalia* was given, in the middle ages, to all the country between the Weser, Rhine and Ems, while the territory between the Elbe and Weser was called *Eastphalia*. The latter name was lost in the course of time: the former was retained, and was subsequently given to the circle of Westphalia, and to the Sauerland, or the duchy of Engern.

2. *Duchy of Westphalia*. In early times, this formed part of the great duchy of Saxony, and was then called *Sauerland*, a name which is still in use among the common people of that country, and includes also a part of the former county of Mark. In 1179, when Henry the Lion was put under the ban of the empire, the archbishop of Cologne received it from the empire as a fief, under the name of *Westphalia*, after which the name passed over to the country. Cologne remained in possession of it until the dissolution of the archbishopric, in 1802, upon which it was given, by way of indemnity, to Hesse-Darmstadt. In 1815, it was ceded by this power to Prussia, and was united with the Prussian province of Westphalia. It then contained 1530 square miles, with 134,715 inhabitants.

3. *Circle of Westphalia*. This comprised not only the land between the Weser, Rhine and Ems, but also considerable districts on the left bank of the Rhine; but the proper duchy of Westphalia, as an appendage of Cologne, was considered as belonging to the electoral circle of the Rhine. It had also the official name of the *Westphalian Circle of the Lower Rhine*. It was one of the larger circles of the ancient empire.

4. *Kingdom of Westphalia*. The peace of Tilsit (q. v.) had made Napoleon master of all the Prussian territory west of the Elbe, and he also kept possession of the territories of the electors of Hesse and Hanover, and the duke of Brunswick. He had not then conceived the idea of extending the frontiers of the empire beyond the Rhine; and he created, out of the countries just mentioned, a kingdom of Westphalia, comprising all the country of Brunswick-Wolfenbüttel, the electorate of Hesse (except Hanau and Katzenelnbogen), the Prussian provinces of Magdeburg and Altmark west of the Elbe, Halberstadt with Hohnstein, Hildesheim with Goslar, Mansfeld, Quedlinburg, Eichsfeld with Treffurt, Mühlhausen and Nordhausen, Stolberg-Wernigerode, Paderborn, Minden and Ravensberg, the Hanoverian provinces, Göttingen, Grubenhagen with Hohnstein and Elbingerode, and Osnabrück, Corvey, and the county of Rittberg. The area amounted to 1530 square miles, with 1,946,343 inhabitants. November 15, 1807, the kingdom of Westphalia was created, and Jerome, the brother of Napoleon, then only twenty-four years old (see *Jerome*), was made king, with a constitution formed in close imitation of that of the French, which abolished feudalism, and might have done good in various respects, could it ever have gone into full operation free from the weight of foreign influence which continually pressed upon the kingdom.* Jerome appeared, Dec.

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* The emperor Napoleon gave this constitution to the country, as its preamble declares. It stipulates of what the kingdom of Westphalia is to consist; that half of all the domains of the former princes shall be at the emperor's disposal, to be given to his officers of the army; that Westphalia is to form part of the confederacy of the Rhine, with a contingent of 25,000 men, of whom, however, in the "first years," only half are to be raised; the other half to be furnished by France, and to form the garrison of Magdeburg; that Jerome Napoleon is to be king, his direct male descendants to succeed

7, in Cassel, and entered on the government, but conducted, as might have been expected, not like a king, but rather like a French prefect. The situation of this new kingdom was deplorable. All the provinces had been systematically exhausted by the French, before they were united into a kingdom; in addition to which, the emperor had retained half of all the domains, or public property, in order to make grants therefrom to his soldiers; had stipulated that he should keep 12,500 men in Magdeburg, to be supported, clothed and paid by the people of the country; and the kingdom was to pay all the contributions which had been imposed upon the several territories composing it when they were conquered. Westphalia was, in many respects, but a province, a territory of France, without enjoying the advantages which it might have derived from forming an integral part of the empire, and having the additional burthen of a large army and an expensive government. On the other hand, we must not omit to state the advantages which grew out of the intimate connexion of this new kingdom with France. The greatest were, as we have already said, the abolition of feudalism, and an increased estimation of the lower classes, a greater willingness to acknowledge their rights, e. g. in respect to the administration of justice, the distribution of the public burthens, their participation in the municipal administration, &c. The finances of the kingdom were in great embarrassment when it went into operation, and always remained so during the seven years of its existence, large sums going every year to France without any equivalent, and the kingdom being obliged to take part in all the great movements of the empire. The young, inexperienced monarch had, indeed, counsellors around him, who did the best that could be done under the deplorable circumstances of the kingdom. Within a short time, an army of 16,000 men was formed. The French code, though at first much disliked, gradually began to find less opposition from the people; the taxes, though high, were more uniformly distributed than ever before; and the new constitution afforded advantages to the great body of the people, which they soon began to estimate. The government gained in firmness as the prejudices against it diminished. The king, besides his civil list, had 1,000,000 francs as a French prince. He was much inclined to dissipation, but, at the same time, disposed to do good to his people. In 1809, internal commotions began, occasioned by the war between Austria and France. The eastern frontier of the kingdom was attacked by a corps under Schill. (q. v.) In the south, an insurrection broke out among the peasants near Marburg. These circumstances gave rise to severe measures, and the extension of the high police. The king was obliged, by France, to increase his army to 30,000 men; and the taxes were, in consequence, so much augmented that, neither the minister of finances nor the estates of the kingdom knowing any other means to provide for the exigency, the public domains were sold, and the public debt was arbitrarily reduced, by expunging a certain portion of each man's demand. In 1810, the whole of the former Hanoverian territory was united to Westphalia; but hardly had she taken possession of it, when another imperial decree was issued, annexing not only this newly-acquired territory, but also the former provinces of Osnabrück, Minden, and

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him; the king to remain always subject to the imperial family statutes; in case of minority, Napoleon, or his descendants, to appoint a regent; the king and his family to have a revenue of 5,000,000 francs, to be raised from the other half of the domains, with additions from the public treasury, if they should fail to yield the requisite amount. It further provides that there shall be a constitution securing the equality of all the subjects and freedom of worship; that the feudal privileges, and those of corporations, shall be abolished, but the different ranks of nobility are to continue; one system of taxes to embrace all classes; the tax on real estate not to exceed a fifth of the revenue; four ministers to be appointed, and a council of state; laws respecting the finances, civil and penal legislation, to be drawn up in the council of state, to be discussed by committees of the chamber, their reports to be discussed by the council of state, and the law, as finally settled by the council of state, under the presidency of the king, to be laid before the chamber; the estates to consist of one hundred members (seventy to be chosen of owners of real estate, fifteen of merchants and manufacturers, and fifteen of literary men); a third part to be renewed every three years; their president to be nominated by the king; their debates to be secret; the country to be divided into departments, &c., with prefects, &c., and departmental colleges, &c., as in France; the *Code Napoléon* to be adopted January 1, 1808; the administration of justice to be public, in penal cases with the aid of juries; a new system of penal jurisprudence to be adopted July 1, 1808; courts of the peace to be established, with justices of the peace; the judges to be independent, appointed by the king; the judges to be removable only by the king, and only after sentence by the court of appeal, on charges presented by the royal procurator, or one of its presidents; no enlisting of soldiers for money to take place; the army to be supplied by conscription. Dec. 23, 1808, a supplementary statute was issued, establishing one more minister.

part of Ravensberg, to the French empire. It was of no avail that the king strove to prevent this measure by personal representations in Paris: he was obliged to submit, and, moreover, to adopt the continental system (q. v.): but this was not so oppressive in Westphalia as in some other countries, the government mitigating its rigor as much as possible. In 1812, the king led his army to Poland; but the emperor soon obliged him to leave his troops and return. Of his 24,000 men, but few escaped the disasters which befell the French forces beyond the Niemen. A new army, of 12,000 men, was immediately organized, and accompanied the imperial army to Saxony; but the hearts of the soldiers were with their brethren who stood opposed to them. Even before the battle of Leipsic (q. v.), Czernitscheff drove the king from his residence, and occupied Cassel for three days. The king returned with some French troops, but only to receive the news of the great battle of Leipsic, and to leave his residence and kingdom for ever, after having caused every thing valuable in his palaces, and even a part of the treasures of the museum, to be carried off. Two days after his departure, the Russians entered Cassel; and, in a few days, the old governments were reëstablished almost throughout the kingdom. Oct. 20, 1813, the kingdom of Westphalia ceased to exist.

5. The *Prussian Province of Westphalia* was created, in 1815, out of the provinces which Prussia formerly possessed in the Westphalian circle, with the exception of the duchies of Cleves and Berg, and the abbeys of Essen and Werden. It is bounded by the Netherlands, Hanover, Brunswick, the two Lippes, electoral Hessia, Waldeck, Hesse-Darmstadt, Nassau, the Lower Rhine, and Juliers-Cleve-Berg. The southern and eastern parts are mountainous, yet have some fertile plains: the northern and north-western parts contain considerable heaths. The climate is generally moderate, but rough in the mountainous parts of the Sauerland. The Weser, Ems, Lippe, and Ruhr, are the most important navigable rivers. The products are cattle, grain, flax, wood, much iron, copper, calamine, lead, coals, salt, mineral waters, &c. The agricultural products are not sufficient to supply the inhabitants. The manufacture of linen, and all kinds of iron and steel wares, is extensive. Many of the inhabitants of the northern parts go annually to the Netherlands, to assist in gathering the harvest, and to dig turf. The whole province contains 7780 square miles, and, with the military, 1,096,000 inhabitants, partly Catholics, partly Protestants, chiefly Lutherans. It is divided into three governments, Münster, Minden, and Arnsberg, with capitals of the same names. In Hamm, a periodical called *Archives of History and Antiquities* is published by a society for promoting the knowledge of the history and antiquities of Westphalia.

Westphalia, Peace of; the name given to the peace concluded in 1648, at Münster and Osnabrück (both situated in Westphalia), by which an end was put to the thirty years' war (q. v.), and a new political system was established in Europe, which continued till the breaking out of the French revolution. For Germany, particularly, it became the foundation of the whole political system—a system unwieldy and oppressive. This peace was not concluded until after seven years of negotiation and preparation. Towards the end of 1641, preliminaries were agreed upon at Hamburg, having reference chiefly to the mode of proceeding in regard to the future peace, and the place where the deliberations should be carried on. The actual negotiations did not commence until 1644, at Osnabrück, between the ambassadors of Austria, the German empire and Sweden; at Münster, between those of the emperor, France and other powers; but the articles adopted in both formed one treaty. This division of the members of the diplomatic congress was intended partly to prevent disputes on points of etiquette between France and Sweden, partly because Sweden refused to have any thing to do with the papal nuncio, who was sent to assist in the negotiations. Quarrels on points of etiquette, carried to the most ridiculous extreme, prevented the opening of the congress for a long time. The ministers of princes claimed the title of *excellency*, like those of the electors. A round table was adopted for the sessions, in order to evade other punctilios. Peace was concluded at Münster, whither the ministers, who had been at Osnabrück, repaired, after they had also concluded a treaty shortly before, on October 24, 1648. By this peace, the religious and political state of Germany was settled: the sovereignty of the members of the empire was acknowledged. They received the right of concluding treaties among themselves and with foreign powers, only not against the emperor and empire. Their consent was made necessary to enable the emperor to put any of the members under the ban. The electoral family of the Palatinate received back the Palatinate (q. v.) of the Rhine, and the eighth electorship was created for it, with a provision, however, that this should be abolished in case the Bavarian house should become extinct (as actually happened in 1777), since the Palatine house would then recover the Bavarian electorate. The changes which had been made for the advantage of the Protestants since the religious peace (q. v.), in 1555, were confirmed by the determination that every thing should remain as it had been at the beginning of the (so called) *normal year* (q. v.), 1624. The Calvinists received equal rights with the adherents of the Augsburg Confession (q. v.), or the Lutherans. The princes of the empire were bound not to prosecute or oppress those of their subjects whose religious faith differed from their own. After all impediments in the way of the system of toleration had been overcome, the ambassadors embraced and shed tears of joy. Several religious foundations were secularized, and given as indemnifications to several members of the empire, in which the emperor acquiesced to secure the integrity of his hereditary states. The empire ceded Alsatia to France, to its lasting injury; Sweden received Hither Pomerania, Bremen, Verdun, Wismar, and 5,000,000 of German dollars for her troops. Brandenburg received the secularized bishoprics of Halberstadt, Minden, Camin, and the reversion of Magdeburg. Mecklenburg received the secularized bishoprics of Schwerin and Ratzeburg; Hanover, alternately with a Catholic bishop, the bishopric of Osnabrück and some convents; Hesse-Cassel, the abbey of Hirschfeld and 600,000 German dollars. The United Netherlands were acknowledged as an independent nation, and the Swiss as entirely separate from the German empire. France and Sweden undertook to guaranty this peace. The solemn protest of pope Innocent X against these terms, particularly in respect to the injury done to the papal see by the secularization of bishoprics and abbeys, &c., was not regarded; but the complete execution of the conditions of the treaty was obstructed by many difficulties. The war was even continued between France with Savoy on the one side, and Spain with Lorraine on the other; also between Spain and Portugal.—See Von Woltmann's *History of the Peace of Westphalia* (2 vols., Leipsic, 1808).—This peace gave the death-blow to the political unity of Germany. It made the German empire, which was always a most disadvantageous form of government for the people, a disjointed frame, without organization or system. Ferdinand II, had it not been for his intolerance, might have had it in his power, after the peace of Lübeck with Denmark, in 1629, to give once more consistency to the empire; whether, on the whole, to the advantage of the people, or not, we do not say. But by the "edict of restitution" effected by the Jesuits, he deprived himself of the fruits of Tilly's and Wallenstein's victories. Every German prince and petty monarch now thought only of his own house; and the German empire not only lost, by the peace of Westphalia, a territory of 40,000 square miles, with 4,500,000 inhabitants, but also its western military frontier; while Lorraine, on the side of Alsatia, and the Burgundian circle in the west and north, were left without defence. The internal trade of Germany was also grievously obstructed by the establishment of above 300 sovereigns. On the other hand, the right procured by France for every member of the empire to conclude separate alliances, which gave to Bavaria, Brandenburg, and other German houses, importance in the general European politics, together with the influence of foreign powers, as Sweden, on the politics of Germany, made this country thenceforth the theatre of all the quarrels of Europe. One military state after another was established; and the German nation, impeded, in a thousand ways, in its manufactures and commerce, labored only to support a number of petty, yet overgrown armies, ridiculous courts and foreign embassies. The aristocratic principle was developed at the expense of the monarchical, so that the empire, which always had the disadvantages both of an electoral and a hereditary monarchy, without the advantages of either, now became entirely crippled. France and Sweden acquired great influence in Germany by this peace, owing to the contemptible pride of the petty princes of the country, and their insensibility for the general well-being of the nation. Though well aware that such speculations are useless, the historian can hardly help asking himself, How different would have been the destiny of Europe but for the ball which put an end to the precious life of Gustavus Adolphus, on the field of Lützen?

Wethersfield Prison. (See *Prison Discipline.*)

Wetstein; the name of a family long resident at Basle, several of the members of which were highly distinguished as scholars and theologians.—*John James Wetstein*, born in 1693, is said to have graduated at Basle as a doctor in philosophy before he had reached the age of seventeen. Having entered the church, he devoted himself, with uncommon ardor and perseverance, to the restoration of the purity of the text of the New Testament, and, in pursuance of this object, visited most of the principal libraries of France, Switzerland, Germany and England, examining and collating their various manuscripts. On his return to Basle, he declared his intention of publishing a new treatise on this important subject, under the title of *Prolegomena ad Novi Testamenti Græci Editionem accuratissimam e vetustissimis Codicibus Manuscriptis denuo procurandam.* This annunciation excited considerable uneasiness among the German divines, who exerted themselves with such effect to procure the suppression of a work which, they feared, might unsettle the received version, that the council refused to sanction or permit the publication. Wetstein, in consequence, removed to Holland, where he published his book in 1730, and was soon after appointed by the Remonstrants to the professorship of history and philosophy, then become vacant by the resignation of Le Clerc. In 1751—1752 appeared his last work, an edition of the New Testament, in two folio volumes, with the text as generally received, and the various readings, notes, &c., below. To this he also annexed two curious epistles of Clemens Romanus, from a Syriac manuscript, with a Latin version. He died at Amsterdam, March 24, 1754.

Wette, William Martin Leberecht de, doctor and professor of theology in the university of Basle, was born in 1780, in the village of Ulla, in Weimar, where his father was minister. In 1796, he entered the gymnasium of Weimar. He there became acquainted with Mounier (q. v.), a French emigrant, whose son he instructed and accompanied on a journey to Switzerland and Grenoble. In 1799, he went to the university of Jena, and studied theology. In 1805, he published a treatise on the Mosaic books; and his lectures on the same subject met with much approbation. In 1807, he was appointed *professor extraordinarius* of philosophy at Heidelberg, and, in 1809, entered the theological faculty of the same university as *professor ordinarius* of theology. In 1810, he accepted an appointment in the university of Berlin. The results of the inquiries into which his lectures led him he gave to the public in several works, among which are the following:—Contributions to an Introduction to the Old Testament (1806—1807); Manual of Hebraico-Jewish Archæology (1814); Manual of a Historico-Critical Introduction to the Old Testament (1817), of which a second edition has appeared (vol. i. in 1823, vol. ii. in 1826). His investigations led him, in some cases, to views and hypotheses which met with much opposition; e. g. that the Pentateuch consists of a collection of works which originated independently of each other, and were brought together, towards the end of the Jewish exile, in an epic poem, having for its object the exaltation of the theocracy. He formed a connexion with Augusti, with a view of preparing a new translation of the whole Bible (Heidelberg, 1809—1811, 5 vols.), of which competent judges have thought the parts prepared by De Wette the best. His attachment to the philosophical system of his friend Fries (q. v.) appears in his work On Religion and Theology (1815 and 1821), one of the most important contributions of modern times to the philosophical criticism of dogmatics. His Biblical Dogmatics of the Old and New Testament (1813 and 1818) also has the stamp of the philosophy of Fries, as has likewise his Christian Morals (3 vols., 1819—1821). But, during the writing of this work, the situation of De Wette was suddenly changed. He had found, in 1818, a hospitable reception in the house of the parents of Sand (q. v.), and, after the murder of Kotzebue by that young man, De Wette thought it his duty to write a letter of consolation to the unhappy mother of the youth. The letter contained this passage: "The spirit of faith and confidence with which the deed was performed is a good sign of the times. The deed, considered in a general point of view, is immoral. Evil is not to be overcome by evil, but only by good. No right can be founded on wrong, cunning or violence, and the good end does not justify the means." A dispassionate reader will find an apology for this language when he considers the circumstances in which it was written, and that all allow Sand to have been actuated merely by a sense of duty when he committed the murder. After the letter was made public, De Wette maintained that it ought to be considered that it was of a private character, addressed merely to the mother of the unfortunate youth, and that all he wished was to be judged by a competent tribunal; but the ministry of public instruction dismissed him without further inquiry. The senate of the university attempted to intercede for him, but was severely reprimanded. Upon leaving his situation, he addressed manly letters to the king, the minister and the senate. He refused to accept a quarter's salary offered him by the minister, and left Berlin. He received many proofs of the general interest taken in his situation. In Weimar, he finished his Christian Morals, prepared a critical edition of the complete works of Luther (of which the first volume, containing the letters of Luther, appeared at Berlin in 1825), and wrote a work called *Theodor oder die Weihe des Zweiflers* (Berlin, 1822), which, in the form of a biography, gives his views on the most important subjects of dogmatics, morals, æsthetics and pastoral theology. It shows how his soul had risen above the difficulties of his situation. He now felt the desire of becoming useful as a preacher, and appeared in the pulpit in several places in his native country. He also published several of his sermons, by which the congregation of St. Catharine's church, at Brunswick, were induced to invite him to become a candidate for the place of assistant clergyman, in 1821. He accepted the invitation, and was unanimously elected; but the government refused to confirm his election, though the theological faculties at Jena and Leipsic had declared that he had not rendered himself unfit for the ministry by his letter to Sand's mother. De Wette therefore accepted a theological appointment in the university of Basle, to which he went in the spring of 1822. He soon acquired the greatest esteem by his lectures in his new situation. His Lectures on Morals (Berlin, 1823, 2 vols.) were delivered before a mixed audience. His Sermons appeared in 1826—1827, and his Lectures on Religion, its Essence and its Forms of Manifestation, Berlin, 1827. We believe that he is at present chiefly occupied with the revision of his works and with his edition of Luther.

Wetter, a lake of Sweden, in East Gothland, sixty-five miles long, and from ten to sixteen wide, is deep and clear. It is supposed to prognosticate the approach of stormy weather. Like all inland pieces of water surrounded with mountains, it is subject to sudden storms in still weather; and superstition has reported that these storms are occasioned by a subterranean communication with lake Constance, in Switzerland.

Wettin, Counts of; a distinguished family in the middle ages, from which all the present reigning houses of Saxony derive their origin. The name is taken from a Sclavonic place, in the duchy of Magdeburg. The first of this family, known with certainty, is Dieterich, count of Wettin, who died in 982. His descendant, Frederic the Warlike, was infeoffed by the emperor Sigismund, in 1423, with Saxony, and the dignity of elector was connected with his fief. (See *Saxony*.)

Weyde, Roger van der. (See *Roger*.)

Weymouth; a seaport, borough, and market-town of England, in Dorsetshire, at the mouth of the Wey, celebrated as a fashionable bathing-place. It is situated on the British channel, at the western side of a most beautiful bay, well protected from the north winds by hills. It communicates with Melcombe Regis, to which it is united by a handsome new bridge. Weymouth became a place of fashionable resort in consequence of its being frequented by George III, and is now greatly enlarged by the addition of many new and elegant buildings. The fashionable promenade is on the esplanade, which is a beautiful raised terrace, of considerable length and breadth, kept in the most perfect repair, with a slope gradually descending to the sands. The united borough of Weymouth and Melcombe Regis sent four members to parliament previous to the reform act of 1832, which deprived it of two of its members. Population, 7655.

Wezlar, formerly a free imperial city, in the circle of the Upper Rhine, since 1814, belonging to the Prussian province of the Lower Rhine, in the government of Coblentz, has a romantic situation on the Lahn. It contains 750 houses and 4200 inhabitants. The principal building is the cathedral. Wezlar is famous for having been, as long as the empire existed, the seat of the court of the empire, called the *imperial chamber*. (q. v.) The papers belonging to 80,000 legal processes are preserved in a particular building in this place. The imperial chamber was fixed in Wezlar in 1693. In 1806, it was, of course, dissolved. In 1803, the city and territory were given to the then chancellor of the empire, subsequently the grand duke of Frankfort.

Whale (*balæna*). These animals so much resemble fish in their external form, that they are almost universally considered as such by the great mass of mankind. If, however, we examine their structure more carefully, we shall find that they differ from quadrupeds only in their organs of motion. They are warm-blooded, breathe atmospheric air only, and by means of lungs, and bring forth and suckle their young in the same manner as quadrupeds: in short, all the details of their organization are the same as in this class of animals. The body and tail are continuous, the latter tapering gradually, and terminating in a large, horizontal, cartilaginous fin: the hind feet are altogether wanting, but their position is marked by two small, rudimentary bones, enveloped in the skin: the fore feet have externally the form of fins or flippers; but they possess the same bones as those of quadrupeds, flattened, however, shortened, and enveloped in a tendinous membrane: the head is of enormous size, often occupying one third of the total length of the animal; and the opening of the mouth corresponds in magnitude: the neck is excessively short, and externally appears to be altogether wanting: the nostrils are the blow-holes or spiracles, situated at the top of the head, by means of which atmospheric air penetrates to the lungs when the animal rises to the surface of the water: the skin is entirely destitute of hairs; and beneath it a thick coating of oily fat, commonly called *blubber*, envelopes the animal: the eyes are exceedingly small, compared with the bulk of the animal, and the external ear is altogether wanting: their senses, in consequence, would not seem to be very acute; neither do they display much intelligence: the sea affords them abundance of food, which they are enabled to procure with little difficulty; and they find in their size and strength a sufficient protection against most dangers.—The common or Greenland whale (*B. mysticetus*) is destitute of teeth, but, in their place, the upper jaw is furnished with transverse layers of a horny substance, called *baleen* or *whalebone*, which, at the edges, split into long, slender fringes. This species is productive of more oil than any other; and, being less active, slower in its motion, and more timid than the rest of its kind of similar magnitude, is more easily captured. When fully grown, its length is from fifty to sixty-five feet, rarely, if ever, reaching seventy, and its greatest circumference from thirty to forty: the ordinary weight is about seventy tons. When the mouth is open, it presents a cavity large enough to contain a boat full of men, being six or eight feet wide, ten or twelve high in front, and fifteen or sixteen long. These animals have no voice, but, in breathing or blowing, make a very loud noise: the vapor they discharge is ejected to the height of some yards, and appears, at a distance, like a puff of smoke. The usual rate at which they swim seldom exceeds four miles an hour; and though their extreme velocity may be at the rate of eight or nine, this speed never continues longer than for a few minutes before it relaxes to almost one half. They are also capable of ascending with such rapidity as to leap entirely out of the water, which feat they sometimes perform apparently as an amusement, to the no small terror of inexperienced fishers. Sometimes they throw themselves into a perpendicular posture, with their heads downwards, and, rearing their tails on high, beat the water with tremendous violence: the sea is then thrown into foam, and the air filled with vapors: the noise, in calm weather, is heard to a great distance, and the concentric waves, produced by the concussions on the water, are communicated abroad to a considerable extent. Sometimes the whale shakes its mighty tail in the air, which, cracking like a whip, resounds to the distance of two or three miles. Whales usually remain at the surface to breathe about two minutes, seldom longer, during which time they "blow" eight or nine times. and then descend for an interval of five or ten minutes, but sometimes, when feeding, fifteen or twenty. When struck, they have been known to descend to the perpendicular depth of a mile, and with such velocity, that instances have occurred in which they have broken their jawbones by the blow struck against the bottom. Their food consists of mollusca, shrimps, and other small crustaceous animals. When feeding, they swim with considerable velocity, below the surface, with the jaws widely extended; a stream of water consequently enters the capacious mouth, bearing along large quantities of marine insects. The water escapes again at the sides, but the food is entangled and strained by the whalebone, which, from its compact arrangement, does not allow a particle of the size of the smallest grain to escape. Whales, though often found in great numbers together, can scarcely be said to be gregarious, occurring, most generally, solitary, or in pairs, excepting when drawn to the same spot by the attraction of an abundance of palatable food, or a choice situation of the ice. They occur most abundantly in the frozen seas of Greenland, and Davis's straits, in Baffin's and Hudson's bays, in the sea to the northward of Beering's straits, and along some parts of the northern shores of Asia, and probably of America. They are never met with in the German ocean, and rarely within two hundred leagues of the British coast; but along the coasts of Africa and South America, they are found, periodically, in considerable numbers, and are captured by the southern British and American whalers. It is not, however, certainly ascertained, whether this species is identical with the northern, though it evidently approaches it very closely.—The instruments of general use, in the capture of the whale, are the harpoon and lance. The harpoon is an instrument of iron, about three feet in length, terminating in an arrow-shaped head, the two branches of which have internally a smaller reversed barb, resembling the beard of a fish-hook. When this instrument is forced, by a blow, into the fat of a whale, and the line is held tight, the principal barbs seize the strong ligamentous fibres of the blubber, and prevent it from being withdrawn. The lance is a spear of iron, six feet in length, terminating in a head of steel, made very thin and exceedingly sharp, seven or eight inches in length and two or two and a half in breadth. These two instruments, together with lines, boats and oars, form all the necessary apparatus for capturing the whale. Considerable address is requisite to approach sufficiently near to the animal during its short stay at the surface; but when this has been accomplished, the hardy fisher rows directly upon it, and, an instant before the boat touches, buries the harpoon in its back. But if, while the boat is at a little distance, the whale should indicate his intention of diving, the harpoon is thrown from the hand; and when this is done skilfully, it is efficient at the distance of eight or ten yards. The wounded whale makes a convulsive effort to escape. Then is the moment of danger; and both boat and men are exposed to destruction from the violent blows of its ponderous tail. The animal immediately sinks under water: after this it usually pursues its course directly downwards towards the bottom of the sea. The utmost care and attention are requisite, on the part of every person in the boat, while the lines are running out; fatal consequences having been sometimes produced by the most trifling neglect. When the line happens to run foul, and cannot be cleared on the instant, it sometimes draws the boat under water. The average stay under water of a wounded whale, which steadily descends after being struck, is about thirty minutes. The greater the velocity, the more considerable the distance to which it descends, and the longer the time it remains under water, so much greater in proportion is its exhaustion and the facility of accomplishing its capture. Whenever it re-appears, the assisting boats make for the place with their utmost speed; and, as they reach it, each harpooner plunges his harpoon into its back, to the number of three, four, or more, according to the size of the whale and the nature of the situation. Most frequently, however, the whale descends, for a few minutes, after receiving the second harpoon, and obliges the other boats to await its return to the surface, before any further attack can be made. It is afterwards actively plied with lances, which are thrust into its body, aiming at the vitals. At length, exhausted by numerous wounds and the loss of blood, the huge animal indicates the approach of death by discharging from the blow-holes a mixture of blood along with the air and mucus which it usually expires, and, finally, jets of blood alone. The sea, to a great extent round, is dyed with its blood; and the ice, boats and men are sometimes drenched with it. Its final capture is sometimes preceded by a convulsive struggle, in which the tail, reared, whirled, and violently jerked in the air, resounds to the distance of miles. In dying, it turns upon its back or its side. Thus ends this remarkable contest between human ingenuity and brute force, in which man seems to be chiefly indebted for success to his own apparent insignificance, to the animal exhausting itself by its own efforts, and to the necessity it is under of coming to the surface to breathe. The remarkable exhaustion observed in a wounded whale, on its reappearance at the surface, is the effect of the almost incredible pressure to which the animal must have been exposed at the depth of seven or eight hundred fathoms—a pressure on the surface of its body exceeding 200,000 tons, and which is sufficient to force the water through the pores of the hardest wood.—For a full account of the whale, as well as of the various modes of fishing in pack, field, or bay ice, &c.,

and of the subsequent operations upon the dead body, we must refer to the work of Scoresby, where the reader will find the most certain information on this subject, so far, at least, as the business is carried on in the Polar seas.—The various uses to which the different parts of the whale are applied, are too numerous for insertion here: suffice it to say, the whale fishery forms an important branch of commerce, and, indeed, seems almost indispensable to the existence of some northern tribes.—The razor-back (*B. physalus*) is probably the most powerful and bulky of its tribe, and, consequently, of the whole animal creation. It is readily distinguished from the preceding by the presence of a dorsal fin; its form is less cylindrical, the body proportionably longer, the whalebone shorter, its breathing or blowing more violent, and its speed greater. The length is about one hundred feet, and its greatest circumference thirty or thirty-five. Its blowing, in calm weather, may be heard at the distance of a mile. Its greatest speed is about twelve miles an hour. It is by no means a timid animal; and, when closely pursued, does not attempt to outstrip the boat, but merely endeavors to avoid it by diving or changing its direction. If harpooned, or otherwise wounded, it then exerts all its energies, and escapes with its utmost velocity, but shows little disposition to retaliate on its enemies. It seldom lies quietly on the surface of the water while blowing, but usually has a velocity of four or five miles an hour, and, when it descends, very rarely throws its tail into the air, which is a very general practice with the common whale. Its great speed and activity render it a difficult and dangerous object of attack, while the small quantity of inferior oil it affords makes it unworthy the general attention of the fishers. When struck, it frequently drags the fast-boat with such speed through the water, that it is liable to be carried immediately beyond the reach of assistance, and soon out of sight of both boats and ship. It has been known to dive obliquely with such velocity that 480 fathoms, or more than half a mile, of line were withdrawn from the boat in about a minute of time. The head is small, compared with that of the common whale; the fins long and narrow; the tail about twelve feet broad; the whalebone about four feet in length, thick, bristly and narrow; the blubber six or eight inches thick, of indifferent quality; the color, bluish-black on the back, and bluish-gray on the belly; the skin smooth, excepting on the sides of the thorax, where are some remarkable longitudinal folds. The *physalus* occurs, in great numbers, in the Arctic seas, especially along the edge of the ice between Cherie island and Nova Zembla, and also near Jan Mayen. It is seldom seen among much ice, and seems to be avoided by the common whale; and, consequently, the whale fishers view its appearance with concern.—The cachalot or spermaceti whale (*physeter macrocephalus*) differs from the above-mentioned animals in many important particulars. The mouth is entirely destitute of whalebone, and the lower jaw is armed, on each side, with a row of about twenty thick, conical teeth, which fit into corresponding depressions in the upper jaw. The blowhole is single, not symmetrical, but directed towards the left side, and placed at the extremity of the upper part of the snout. The left eye is also smaller than the other. The head is of enormous size, terminating abruptly in front; but the lower jaw is very long and narrow. The upper part of the head is composed of large cavities, separated by cartilaginous partitions, filled with an oil which condenses and crystallizes on cooling, forming the well-known substance called *spermaceti*. This is the principal object of the fishery; for their body does not yield a great proportion of blubber. The spermaceti whale is found in all seas, but most abundantly in the Pacific. It is gregarious; and herds are frequently seen containing two hundred or more individuals. Such herds, with the exception of two or three old males, are composed of females, who appear to be under the direction of the males. The males are distinguished, by the whalers, as "bulls," and the females they call "cows." The bulls attack with great violence, and inflict dreadful injuries upon other males of the species which attempt to join the herd. Whenever a number of them are seen, four boats, each provided with two or three lines, two harpoons, four lances, and a crew of six men, proceed in pursuit, and, if possible, each boat fastens to a distinct animal, and each crew kill their own. When one is struck out of a herd, it commonly takes the lead, and is followed by the rest. It seldom descends far under water, but generally swims off with great rapidity, stopping after a short course, so that the boat can be drawn up to it by the line, or be rowed sufficiently near to lance it. In the agonies of death, the struggles of the animal are tremendous: the surface of the ocean is lashed into foam by the motions of its tail; and the boats are kept aloof, lest they should be dashed to pieces. When a herd is attacked in this way, ten or twelve of the number are often killed: those which have been only wounded are rarely captured. The separation of the blubber, or "flensing," is sometimes done differently from the manner used in polar whaling. A strap of blubber is cut in a spiral direction, and, being raised by tackles, turns the animal round, as on an axis, until nearly all the blubber is stripped off.

Whale Fishery. The Biscayans were the first people who prosecuted the whale fishery as a regular commercial pursuit. They carried it on with great vigor in the twelfth, thirteenth and fourteenth centuries. The whales taken by them were not, however, so large as those taken in the polar seas, and were not very productive of oil; but their flesh was used for food, and the whalebone, which was sold at a very high price, was applied to various useful purposes. The failure of whales in the bay of Biscay put an end to this fishery. The voyages of the English and Dutch to the Northern ocean, in search of a passage to India, laid open the haunts of the whale; and vessels were fitted out by those nations, the harpooners and part of the crew being Biscayans. The numbers of whales were here so great, and the capture so easy, that many were killed and abandoned merely from the ships being full. It was the practice of these times to boil the blubber on shore in the north, and to fetch home only the oil and whalebone; and the Dutch constructed a considerable village on the northern shore of Spitzbergen, which they called *Smeerenberg* (from *smeeren*, to melt, and *berg*), and which, during the busy season, abounded with shops, inns, &c. The Dutch acquired a decided superiority over their competitors in the fishery; and such was the quantity of oil procured, that ships were sent out in ballast to assist in bringing home the produce. Whales soon became scarce about Spitzbergen, taking to the deep ocean, and to the Greenland seas; and it became usual to send the blubber direct to Holland. The fishery had at first (1614) been granted to an exclusive company, but was thrown open in 1642; from which time it was carried on to the greatest extent, and to the most advantage. The private ships sent out by the Dutch were fitted out on a principle that secured economy and vigilance on all sides. The hull of the vessel was furnished by an individual, who commonly took upon himself the command; a sail-maker supplied the sails, a cooper the casks, &c. The parties engaged as adventurers: each person shared in the produce according to his proportion of the outfit, and the crew was hired on the same principle, which is also practised to a considerable extent in the U. States. In its most flourishing state (about 1680), the Dutch whale fishery employed about 260 ships and 14,000 sailors. The wars of the end of the eighteenth and beginning of the nineteenth centuries annihilated this branch of Dutch industry, and, in 1828, only one ship sailed from Holland. The English whale fishery was at first carried on by exclusive companies, but with little success. In 1732, a bounty of twenty shillings a ton to every ship of more than two hundred tons' burthen engaged in the fishery, was granted by parliament, which, in 1749, was raised to forty shillings, and continued, with some variations (being finally reduced, in 1795, to twenty shillings), till 1824, when it ceased. The total amount of bounties paid from 1750 to 1824 has been estimated at about £2,500,000; but the success of British whalers, even with this advantage, is to be attributed principally to the decline of the Dutch fishery. In 1815, there were 134 British ships, with 5800 seamen, engaged in the northern whale fishery, and about thirty ships, with 800 men, in the southern. In 1821, when the number was greatest, there were 142 ships, of 44,864 tons, and with 6074 men engaged in the northern fishery; in 1824, 120 ships, of 35,194 tons, and 4867 men; immediately after the repeal of the bounty, the number fell off at once, and, in 1829, it amounted only to eighty-nine, of 28,812 tons. In 1830, of eighty-seven ships fitted out for Davis's straits, about eighteen or twenty-two per cent. were totally lost; twenty-four returned *clean*, or without having caught a single fish, and of the remainder not one had a full cargo. The locality of the northern fishery has entirely changed since the first expeditions. The seas between Spitzbergen and Greenland have been entirely abandoned by the whalers, who now resort to Baffin's bay and Davis's strait, or the coast of West Greenland. The Dutch first began to frequent Davis's straits in 1719; but it was quite recently that the English first followed their example. Even so late as 1820, the fishery in the Greenland seas was the most considerable; but within a few years it has been almost entirely deserted. Of ninety-one ships, fitted out in 1830, only four were for Greenland. The discoveries made in the northern waters, by the English exploring voyages (see *North Polar Expeditions*), have made the fishers acquainted with several new and advantageous situations for the prosecution of their business. The sea in Davis's straits is less incommoded with field ice than the Greenland and Spitzbergen seas; but it abounds with icebergs (see *Ice*), and the fishery is more dangerous. The South sea fishery was not prosecuted by the English till about the beginning of our revolutionary war; and, as the Americans had already prosecuted it with much success, four American harpooners were sent out in each vessel. In 1829, thirty-one ships were sent out, of the burthen of 10,997 tons, and carrying 937 men, the number having declined since 1818, when fifty-eight ships, of 18,214 tons, and carrying 1648 men, were engaged in it. France has, of late years, had little share in the whale fishery. In 1784, Louis XVI fitted out six ships, on his own account, which were furnished with harpooners and a number of seamen from Nantucket. In 1790, there were about forty French ships employed in the fishery, which was destroyed by the wars of the French revolution. Since the peace, the government has attempted to revive it, but with little success. The whale fishery has been carried on with greater vigor and success from the U. States than from any other country. It was begun by the colonists on their own shores at a very early period; but, the whale having abandoned them, the American navigators entered with extraordinary ardor into the fisheries in the Northern and Southern oceans, from about the middle of the eighteenth century. From 1771 to 1775, Massachusetts employed annually 183 vessels, of 13,820 tons, in the northern, and 121 vessels, of 14,026 tons, in the southern fishery. These were the first to prosecute the fishery in the southern Atlantic, on the coasts of Africa and Brazil, and led the way into the Pacific seas. "Look at the manner," says Burke (1774), "in which the New England people carry on the whale fishery. While we follow them among the tumbling mountains of ice, and behold them penetrating into the deepest frozen recesses of Hudson's bay and Davis's straits; while we are looking for them beneath the arctic circle, we hear that they have pierced into the opposite region of polar cold; that they are at the antipodes, and engaged under the frozen Serpent of the south. Falkland island, which seemed too remote and too romantic an object for the grasp of national ambition, is but a stage and resting-place for their victorious industry. Nor is the equinoctial heat more discouraging to them than the accumulated winter of both the poles. We learn that, while some of them draw the line or strike the harpoon on the coast of Africa, others run the longitude, and pursue their gigantic game along the coast of Brazil." These are the seas that are still vexed by the American fisheries, which have been pushed, however, into higher southern latitudes than had ever before been visited, and are carried on from the shores of Japan to the icy rocks of New South Shetland. (See *South Polar Islands.*)* They have been principally carried on from Nantucket and New Bedford (see the articles), and have proved very lucrative. At present, they are also prosecuted with great success from several other places. One class of ships is fitted out for the Pacific in pursuit of the spermaceti whale. These are from 300 to 500 tons' burthen, carrying from twenty-five to thirty men, and are absent about thirty to thirty-six months. Their number is about 170, of about 62,000 tons, and carrying nearly 5000 men. Another class sail to the coasts of Africa and Brazil, in search of the common or right whale. They average about 325 tons each, carry about twenty-five men, and are absent eight to twelve months. The whole amount of tonnage of this class is about 40,000; number of seamen engaged, 3000. The quantity of sperm oil brought home in 1815, was 3944 barrels; in 1820, 34,700; in 1825, 62,240, and, in 1830, 106,800. The quantity of whale or black oil brought in in 1830, was about 115,000 barrels; of whalebone, about 120,000 pounds. The sperm oil is chiefly used at home; and 2,500,000 pounds of sperm candles are made, employing about thirty manufactories. The whale oil and whalebone are chiefly exported to Europe. From the report of the secretary of the treasury, May 4, 1832, it appears that for the year ending Sept. 30, 1831, there were exported whale and other fish oil to the value of $554,440; spermaceti oil to the value of $53,526; whalebone to the value of

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* The seas visited by the Americans are, in many parts, little known; the currents are uncertain, and the seamen have had to construct their own maps and charts. Yet shipwrecks have been rare. Two men are always kept at the mast-head on the lookout for land or breakers.

$133,842, and spermaceti candles to the value of $217,830.—See an article in the Foreign Quarterly Review (No. 14), by J. R. McCulloch, and Scoresby's *Voyage to the Northern Whale Fishery* (Edinburgh, 1823), and his *Arctic Regions*.

Whalebone; a substance of the nature of horn, adhering, in thin parallel plates, to the upper jaw of the whale. These laminæ vary, in size, from three to twelve feet in length: the breadth of the largest, at the thick end, where they are attached to the jaw, is about a foot. They are extremely elastic. All above six feet in length is called *size bone*. (See *Whale*.)

Wharton, Thomas, marquis of, an English statesman, was one of the first persons of distinction who joined William III on his arrival in England, and by that prince was made a privy counsellor and justice in Eyre, south of the Trent. Queen Anne created him earl of Wharton; and, in 1709, he was sent as viceroy to Ireland; but the following year he resigned all his employments. Being a zealous whig and firm supporter of the Hanoverian succession, he was favored by George I, who raised him to the rank of marquis. He died in 1715.

Wharton, Philip, duke of, son of the preceding, was born in 1699. He displayed, when quite young, talents which attracted notice; and, having been educated under domestic tutors, at the age of fourteen he married clandestinely, to the great disappointment of his father, whose death shortly after left him at liberty to follow his own inclinations. In 1716, he set out on his travels, for the purpose of finishing his studies at Geneva. But, disgusted with the sober manners of that place, he left his governor there, and went to Lyons, and afterwards to the court of the Pretender at Avignon. That prince, highly gratified by his attentions, gave him the title of duke of Northumberland. About the end of 1716, he returned to England, and thence proceeding to Ireland, where he possessed a peerage, he was allowed to take his seat in the Irish house of peers. He then displayed the versatility of his character by defending, with all the powers of reasoning and eloquence, the established government; in consequence of which he obtained a dukedom. On attaining the age of majority, he made his appearance in the English parliament, where he pursued a line of political conduct diametrically opposite to that which he had lately exhibited; distinguishing himself as the warm defender of bishop Atterbury, impeached as an adherent to the house of Stuart. He also published a virulent opposition paper, called the True Briton. Having impoverished himself by extravagance, his estates were, by a decree in chancery, vested in the hands of trustees; and he retired to the continent, and visited Vienna and Madrid. After practising new intrigues, deceiving, by the levity of his conduct, the Spanish court, and the chevalier de St. George, and rendering himself contemptible alike to all parties, he deprived himself of all his resources, by rejecting an offer of restoration to his title and estate, made him by sir Robert Walpole. Overwhelmed with debts, he went to Paris, where he lived for some time meanly and disreputably. At length he returned to Spain, and, ruined in health as well as in fortune, he was proceeding towards a mineral spring in Catalonia, when he died at a small village, in 1731. Towards the close of his life, he engaged in writing a tragedy on the story of Mary, queen of Scots. His poems, speeches, and letters, with his life prefixed, were published in 1731, in two volumes, octavo.

Wheat (*triticum sativum*). Among the different kinds of grain which form the principal nutriment of the civilized world, and to the culture of which civilization is even attributed, by ancient and modern writers, the first rank is universally conceded to wheat. It is now cultivated in almost all temperate climates, throughout the greater part of Europe, in all the provinces of China, in Natolia, Syria, Persia, and the other temperate parts of Asia, in the north of Africa, and at the cape of Good Hope, in the U. States, and even in the extreme southern parts of South America. The plant belongs to the family of the grasses, like the other *cerealia*. The spikelets of the flowers are sessile, and disposed on two opposite sides of an axis, the whole forming a terminal spike or ear, which, in one variety, is even branched. The culture of wheat, from time immemorial, and in different soils and climates, has produced numerous varieties, which, in some instances, have even been mistaken for distinct species. Winter wheat, sown in the spring, will ripen the following summer, though the produce of succeeding generations of spring-sown wheat is found to ripen better. White, red, awned and beardless wheat change and run into each other in different soils and climates; and even the Egyptian wheat is known to change into the single-spiked common plant. The most permanent varieties are the red and white grained, and the spring wheat, which is generally red. Wheat succeeds best when treated as a biennial, though it does not remain above one year in the ground. Provided the soil be well prepared and dry, and the grain sown in time, the plants do not suffer from the greatest cold, especially if the ground be covered with snow. Animal substances are the best manure for wheat, as containing much gluten, a substance found in a greater proportion in this grain than in any other; and next in importance is lime, as tending to the same effect by chemical combinations. Wheat yields a greater proportion of flour than any other grain, and is also more nutritive. Gluten is so essential an ingredient in bread, that fermentation cannot go on without it; hence its inferiority in wet seasons, and when the wheat is blighted or ill ripened; and hence the advantage of having a stock of old grain. Wheat starch is made by steeping it, and afterwards beating it in hempen bags. The mucilage, being thus mixed with the water, produces the acetous fermentation, and the weak acid thus formed renders the mucillage white. After settling, the precipitate is repeatedly washed, and then put in square cakes for drying. The straw of wheat, from dry, chalky lands, is manufactured into hats. Leghorn hats are made from a bearded variety of wheat, not unlike rye, raised on poor, sandy soils, on the banks of the Arno, between Leghorn and Florence, expressly for this manufacture. It does not grow above eighteen inches in length, is pulled green, and bleached, like flax, on the gravelly bed of the river. The straws are not split, which renders the plait tougher and more durable. (See *Straw*.) We are ignorant of the country whence this valuable grain was first derived; but it was very early cultivated in Sicily.—Spelt (*T. spelta*) appears to be a distinct species, and more hardy than common wheat. It has a stout straw, almost solid, with strong spikes, and chaff adhering firmly to the grain. The grain is light, yields but little flour, and makes but indifferent bread. It is raised in Switzerland, in elevated situations, where common wheat would not ripen; and also in Bavaria and other parts of Germany.

Quantity and Destination of Wheat Flour exported from the U. States during ten Years, from 1821 *to October*, 1831.

	British N. America.	West Indies.	South America.	Great Britain.	France.	Spain & Portugal.	Madeira.	Other parts of Europe.	Africa.	Asia.	Total Barrels.
1821	131,035	551,396	156,888	94,541	1,175	71,958	26,572	9,074	3123	10,357	1,056,119
1822	89,840	436,849	211,039	12,096	228	25,104	21,375	976	3929	26,429	827,865
1823	29,681	442,468	198,256	4,252	51	62,387	4,752	2,088	903	11,864	756,702
1824	39,191	424,359	357,352	70,873	426	939	25,851	47,449	3883	6,439	996,792
1825	30,780	429,760	252,786	27,272	102	730	3,597	55,818	7623	15,438	813,906
1826	72,904	433,094	285,563	18,357	275	504	6,119	27,716	5403	7,885	857,820
1827	107,420	362,674	271,524	53,129	19	4,293	5,171	52,114	4909	7,238	865,491
1828	86,680	370,371	308,110	23,258	6,266	294	4,061	54,371	1737	5,662	860,809
1829	91,088	248,236	235,591	221,176	17,464	509	3,779	14,959	221	4,362	837,385
1830	149,966	281,256	347,290	326,182	56,590	10,222	9,628	36,924	2609	5,214	1,225,881
1831	150,645	371,876	319,616	879,430	23,991	364	12,811	35,416	2751	8,305	1,805,205

The value of the wheat exported in 1831 was $523,270; of wheat flour, $9,938,458.

Imports of Foreign Wheat and Wheat Flour into Great Britain in 1829 *and* 1830.

Countries.	1829.	1830.
Russia, ...	341,567 qrs.	235,108 qrs.
Sweden, ...	16,590 "	2,960 "
Norway, ...	425 "	—— "
Denmark, ...	83,288 "	88,103 "
Prussia, ...	353,958 "	519,573 "
Germany, . . .	306,966 "	365,981 "
Netherlands, .	144,549 "	76,711 "
France, ...	48,939 "	14,742 "
Spain, ...	150,080 "	40,953 "
Italy, ...	75,604 qrs.	—— qrs.
Malta, ...	65 "	28,612 "
Egypt, ...	6,931 "	7,268 "
British N. American colonies,	5,649 "	76,654 "
U. States, . . .	113,818 "	184,100 "
Jersey, Guernsey, Alderney, & Man,	13,500 "	17,349 "

Total imports, 1829, 1,676,077 qrs.; 1830, 1,675,430; 1831, 2,319,461.

Wheel and Axle. (See *Mechanics*.)

Wheel-Work. When an end to be accomplished, in mechanics, cannot be attained with convenience by the simple wheel and axle (see *Mechanics*), it frequently becomes necessary to transmit the effect of the power to the resistance, through a system of wheels and axles acting upon each other. As the wheel and axle is only a modification of the lever, so a system of such machines, acting one upon another, is only another form of the compound lever. In complex wheel-work, the power is applied to the circumference of the first wheel, which transmits its effect to the circumference of the second wheel, which again transfers the effect to the circumference of the second axle, which acts upon the circumference of the third wheel, and this, in the same way, transmits the effect to the circumference of the third axle, and thus the transmission of the force is continued until it has arrived at the circumference of the last axle, to which the weight or resistance is applied. In light work, where the pressure on the machinery is not very considerable, the wheels and axles are allowed to work by the friction of their surfaces, which is increased by cutting the wood so that the grains of the surfaces in contact shall run in opposite directions; also by gluing upon the surfaces of the wheels and axles buffed leather. There are other ways of transmitting the force of each axle to the circumference of the succeeding wheel. A very common method is, by ropes, straps, bands, or belts, round the circumference of the wheel and axle, which act upon each other. The action is in this manner transmitted by the tension of the rope or strap, and rendered effective by friction with the circumferences on which it is rolled. Wheels and axles connected in this manner are called *band-wheels*. When the wheel and axle from which it receives motion, are intended to revolve in the same direction, the band is not crossed, but simply passed round them in the shortest manner; but, when the wheel is to revolve in a direction contrary to the revolution of the axle, the strap is crossed between them. This latter method of applying the strap, has the advantage of having more surface to act upon, and, therefore, having more friction; but the most usual way of transmitting the action of the axles to the succeeding wheels, is by means of teeth or cogs, raised on their surfaces. When this is the case, the cogs on the wheels are generally called *teeth*, and those on the surface of the axle are called *leaves*. The axle itself, in this case, is called a *pinion*. The connexion of one toothed wheel with another, in this manner, is called *gear* or *gearing*. The teeth of the wheel, instead of working in the leaves of a pinion, are sometimes made to act upon a form of wheel called a *lantern*, with cylindrical teeth or bars, called *trundles* or *spindles*. Wheels are denominated *spur*, *crown*, or *bevel-gear*, according to the direction or position of the teeth. If the teeth are perpendicular to the axis of the wheel, and in the direction of its radii, it is called a *spur-wheel*. If the teeth are parallel to the axis of the wheel, and therefore perpendicular to its plane, it is called a *crown-wheel*. Two spur-wheels, or a spur-wheel and pinion which work in one another, are always in the same plane, and have their axes parallel; but, when a spur and crown-wheel are in connexion, their planes and axes are at right angles. By this means, therefore, rotatory motion may be transferred from a horizontal to a vertical plane, or *vice versa*. When the teeth are oblique to the plane or axis-wheel, it is called a *bevelled wheel*. In this case, the surfaces on which the teeth are raised, are parts of the surfaces of two cones. The use of the bevelled wheels is to produce a rotatory motion round one axis, by means of a rotatory motion round another which is oblique to it; and, provided that the two axes are in the same plane, this may always be accomplished by two bevelled wheels.

WHEELS, WHEEL CARRIAGES. (See *Locomotion*.)

WHEELS, WATER. (See *Hydraulics*.)

WHEELER, sir George, a learned traveller, was born in 1650, and, in 1667, became a commoner of Lincoln hall, Oxford, on leaving which he travelled into Greece and Asia, in company with doctor Spon of Lyons, their primary object being to copy inscriptions and describe antiquities. On his return, he presented to the university of Oxford a valuable collection of Greek and Latin manuscripts. In 1684, he took orders, obtained a prebend in the church of Durham, and was presented to the rich rectory of Houghton-le-Spring. He was created doctor of divinity in 1702, and died in February, 1724. In 1682, he published an account of his journey into Greece, in the company of doctor Spon, in six books, folio, which is highly valued for its authenticity and information, interesting to the medallist, antiquary, and student of natural history.

WHEELING, the county town of Ohio county, Virginia, is situated on a high, gravelly, but alluvial bank of the Ohio, a little above Wheeling creek; lat. 40° 7′ N.; lon. 80° 42′ W.; ninety-five miles below Pittsburgh. The town is surrounded by bold and precipitous hills, containing inexhaustible quantities of coal. These hills come in so near the river as to leave but a small area for the town; and it is built principally on one street. The great national road from Baltimore, called the *Cumberland road*, meets the Ohio at this place. Wheeling is the first town on the Ohio where certain embarkation in boats may be calculated on at low water. It has a fine surrounding country, and the land back of it, on the creek, is very fertile. These circumstances, united with its favorable position on the Ohio, give it many advantages. It is a constant resort for travellers, and seems likely to become one of the most important towns on the river. It contains the county buildings, and a great number of warehouses, has manufactures of earthen ware, &c. Many flat and keel boats are built here, and, of late, steamboats in considerable numbers. In 1828, the population was stated, by Mr. Flint, at 2500. In 1830, it was 5221, and is rapidly increasing.

Wherry. (See *Boat.*)

Whet Slate. (See *Slate.*)

Whey. (See *Milk.*)

Whigs and Tories. We have already given Defoe's account of the origin of the latter nickname, under the head *Tories.* "As to the word *whig*," says the same writer, "it is Scotch. The use of it began then when the western men, called *Cameronians*, took arms, frequently, for their religion. *Whig* was a word used, in those parts, for a kind of liquor the western Highlandmen used to drink, whose composition I do not remember,* and so became common to the people who drank it. It afterwards became a denomination of the poor, harassed people of that part of the country, who, being unmercifully persecuted by the government against all law and justice, thought they had a civil right to their religious liberties, and therefore resisted the power of the prince (Charles II). They took arms about 1681, being the famous insurrection of Bothwell bridge. The duke of Monmouth, then in favor here, was sent against them by Charles, and defeated them. At his return, instead of thanks for his good service, he found himself ill treated for having used them too mercifully; and duke Lauderdale told king Charles, with an oath, that the duke had been so civil to the whigs because he was a whig himself in his heart. This made it a court word, and, in a little time, the friends and followers of the duke began to be called *whigs*; and they, as the other party did by the word *tory*, took it freely enough to themselves." (Defoe's *Review*, vii.) Such was the origin of these celebrated party names, which have continued, during the space of 150 years, to be borne by two great divisions of the English aristocracy, and which, at least at many periods, rather deserve the name of factions than of parties. But the origin of the parties themselves was much earlier, and the line of distinction was strongly drawn in the reign of James I, when the long struggle between the crown and the parliament commenced. The court and country parties, the roundheads and cavaliers, the commonwealth's men or republicans and the partisans of absolute power, naturally arose from the mixed character and undefined nature of the English constitution, and the peculiar circumstances in which it was placed by the arbitrary maxims and acts of the Stuarts, and the growing wealth and intelligence of the community. After the dissolution of the monarchy, and its subsequent restoration, a new feature appeared in the principles of its partisans—the doctrine of passive obedience and indefeasible right, which may be considered the true characteristic of the tory, at one period of history. The bigotry and tyranny of James II united all parties against him; and the 'glorious revolution' of 1688 was effected by the combined efforts of the whole nation. "The whigs," says Hume, "suitably to their ancient principles of liberty, which had led them to attempt the exclusion bill, easily agreed to oppose a king whose conduct had justified whatever his worst enemies had prognosticated concerning his succession. The tories and the church party, finding their past services forgotten, their rights invaded, their religion threatened, agreed to drop, for the present, all overstrained doctrines of submission, and attend to the great and powerful dictates of nature. The nonconformists, dreading the caresses of known and inveterate enemies, deemed the offers of toleration more secure from a prince educated in those principles, and accustomed to that practice; and thus all faction was, for a time, laid asleep in England; and rival parties, for-getting their animosity, had secretly concurred in a design of resisting their unhappy and misguided sovereign." During the reign of William (1688—1702), the parties were not, therefore, so distinctly divided as they had been previously, and have been subsequently. The impeachment of Sacheverell (q. v.), during the reign of queen Anne, again brought the two theories of government, which formed the original distinction between the whigs and tories, into collision, and, combined with some bed-chamber intrigues and court quarrels, resulted in the appointment of a tory ministry, at the head of which were Bolingbroke and Oxford. On the accession of the house of Hanover (1714), the scale was again changed, and the whole power was now thrown into the hands of the whigs. (See *George I* and *II*, and *Walpole*; on the origin and early character and history of these parties, see Rapin's *Dissertation on the Whigs and Tories*, and Bolingbroke's *Dissertation upon Parties*.) The following remarks from a celebrated whig journal (Edinburgh Review, vol. xxxvii. p. 21—25) will show the state of parties at that critical period, and how little justice there is in the pretensions of the whigs to liberal and popular views of government. "The accession of the house of Hanover divided England into two parties, the whigs, or friends of the new establishment, and the tories and Jacobites, its secret or avowed opponents. The tories, bigoted to the notion of indefeasible right in the succession to the crown, but apprehensive for their religion if a papist should mount the throne, were distracted between their scruples about the validity of a parliamentary settlement and their fears lest, in subverting it, they might restore, or pave the way for the restoration of the Catholic church. Though deterred, by their religious fears, from embarking decidedly in the cause of the Pretender, they kept on terms with his friends, and were not unwilling to disturb, though they hesitated to overturn, a government they disliked, because it was founded on principles they abhorred. The Jacobites, though most of them were zealous members of the church of England, had a stronger infusion of bigotry in their composition, and were ready to restore a popish family, and submit to a popish sovereign, rather than own a government founded on a parliamentary title. It was impossible that either tories or Jacobites should have the confidence of the Hanoverian princes; and, therefore, while those divisions subsisted, all places of power and profit were in the hands of the whigs. Of these two parties, the tories and Jacobites were the most numerous. They included a certain number of the ancient nobility, and comprehended a very large proportion of the landed interest, and, what gave them a prodigious influence in those days, a vast majority of the parochial clergy. The strength of the whigs lay in the great aristocracy, in the corporations, and in the trading and moneyed interests. The dissenters, who held popery in abhorrence, and dreaded the overbearing spirit of the church, were warmly attached to a government that protected their religious liberty, and, as far as it durst, extended to them every civil right. It has, perhaps, been fortunate in its results for England, that her church was for so many years in hostility to her government. It was during this temporary dissolution of the vaunted alliance between church and state, that religious freedom, such as it exists among us, struck so deep and vigorous a root as to withstand every subsequent effort to blighten or subvert it. It was during this period that the annual indemnity bills were introduced, which, though they have left the stigma, have taken from the test act its sting; and it was during the same period that the toleration act received, in practice, that liberal interpretation which extends its benefits to every possible sect of Christians, the unhappy Catholics only excepted. This protracted struggle between the adherents of the house of Hanover and the partisans of the Stuarts, was not, however, unattended with disadvantages. It confounded, for a time, the ancient distinctions of whig and tory, which had turned on constitutional differences of real and eternal importance, and converted two political sects, or parties, into two factions, contending for the crown. The tories, forced to remain in opposition to the government, learned to ape the language, and ended by adopting many of the opinions, of their adversaries. The whigs, believing the preservation of their liberties depended on the maintenance of the parliamentary settlement of the crown, and finding themselves a minority in the country, were constrained to employ measures and sanction proceedings from which their ancestors would have recoiled. To counteract the local influence of the gentry, they practised and encouraged corruption both within parliament and without, and thus turned against their enemies the weapon they had invented under the Stuarts. To suppress tumults of the rabble, instigated by the vehicles of tory sentiment, annually exported from Oxford, and dispersed over the kingdom, they armed the magistrates with additional, and, till then, unknown powers; and, to defeat the enterprises of foreign princes, acting in conjunction with the disaffected at home, they maintained a standing army in time of peace." The riot act was passed, the triennial act repealed, and the habeas corpus act suspended by the whigs, on the accession of the house of Hanover, and a shameless system of corruption and laxity of political principle introduced, the whole extent of which has but recently been fully exposed to public view. Walpole was finally compelled to retire, by the united opposition of a party of disaffected whigs, acting under lord Carteret (afterwards Granville) and Mr. Pulteney (q. v.), the tories led by Wyndham, and the Jacobites by Shippen, who, Walpole used to say, was the only man whose price he did not know. The whigs still retained the power; and, after some changes, the Pelham administration was formed, in 1743, by the nomination of Henry Pelham to the place of first lord of the treasury. "A more inglorious period of our annals," says the writer last quoted, "is scarce to be found, than from this year to the peace of Aix-la-Chapelle (1748)—defeats and disasters abroad, rebellion (that of 1745) and discontent at home, no concert or activity in the government—the king thwarting his ministers at every step, and openly giving his countenance to their enemies—his ministers occupied with their mutual jealousies and hatreds, neglecting the business of the nation, and, at length, in the midst of a rebellion which had grown to a formidable height from their supineness and incapacity, resigning, in a body (Feb., 1746), to force Mr. Pitt into office, whom they equally feared and hated." The death of Mr. Pelham, in 1754, was followed by new dissensions and political intrigues—a mere scramble for office—terminated by the formation of the Pitt (see *Chatham*) and Newcastle (brother of Pelham) administration, in 1757. This ministry, which was forced upon the king, in direct opposition to his own wishes, carried England triumphantly through the seven years' war, but was dissolved in 1761, on the accession of George III. (q. v.)—See Walpole's *Memoirs of the last ten Years of the Reign of George II* (2 vols., 4to., 1822); and Coxe's *Memoirs of the Pelham Administration* (2 vols., 4to., 1829). The second ground of division, which separated the British nation into the whig and tory parties, could not be said to have any existence after the accession of George III, the first Hanoverian prince who could boast of being born an Englishman;* and, although the names remained to indicate a distinction, it would not be easy to point out any very decided difference between the factions, other than that of the outs and that of the ins, or the ministerial party and the opposition. The liberals and radicals of more recent times have lately come forward with new vigor; and even the names of whig and tory are not probably destined long to survive the passage of the reform act.

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* Burnet (Memoirs of his own Times) says, that the word *whiggam*, used by the western Scotchmen in driving their horses, was the origin of the term *whig* applied to them. Others, with Defoe, derive it from the Scotch word *whig*, or *wigg*, signifying *whey*. Jamieson (Dictionary of the Scotch Language) does not venture to decide.

Whin, in English agriculture; a term sometimes applied to furze; which, when cut in the sap, and bruised in a proper way, by flails, or in other modes, makes excellent green fodder, in winter, for horses. It is also useful, in some measure, to sheep stock, as well as to bees.

Whipping. (See *Flagellation.*)

Whipple, William, a signer of the Declaration of Independence, was born at Kittery, Maine, in 1730. After receiving as good an education as the public school of his native town could afford, he entered on board a merchant vessel, and, during several years, was engaged in making voyages for commercial purposes, principally to the West Indies. He acquired in this way a considerable fortune, and, abandoning the sea in 1759, commenced business with a brother at Portsmouth, New Hampshire, where he continued in trade until within a few years of the revolution. In January, 1775, he was a representative of Portsmouth, in the provincial congress assembled at Exeter, for the purpose of electing delegates to the continental congress in Philadelphia, and of a second provincial congress which met at the same place in the ensuing May, by which he was appointed one of the provincial committee of safety. In 1776, he was placed in the general congress, and continued a member until September, 1777. In 1777, the assembly of New Hampshire placed him at the head of one of the brigades organized in consequence of the progress of Burgoyne. He joined Gates's army, and, in the battle of Saratoga, commanded the

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* George I could not speak English, and Walpole and the monarch were obliged to convers. in Latin. George I and II were both more occupied with German politics than with the domestic government of their English dominions.

New Hampshire troops. He was employed to assist in arranging the terms of capitulation, and in conducting the surrendered army to their encampment on Winter hill, in the vicinity of Boston. In 1778, he shared in the unsuccessful expedition to Rhode Island, under general Sullivan. In 1780, he was chosen a representative to the general assembly of New Hampshire, and was several times reëlected. In 1782, he was appointed by Mr. Morris, the superintendent of finance, receiver of public moneys for New Hampshire—an office which infirm health obliged him to relinquish in 1784. In the former year, he was also appointed a judge of the superior court of judicature. He died in November, 1785.

Whip-poor-will (*caprimulgus vociferus*, Wilson). This remarkable and well-known bird arrives in the Middle States about the close of April or the beginning of May, and continues his migrations to the centre of Massachusetts. In the interior, it is said to proceed as high as Hudson's bay. It is a nocturnal bird, and continues the cry, from which it derives its name, till midnight, except in moonlight nights. The whip-poor-will, when engaged in its nocturnal rambles, is seen to fly within a few feet of the surface of the earth, in quest of moths and other insects. During the day, these birds retire into the darkest woods, usually on high grounds, where they pass the time in silence and repose, the weakness of their sight compelling them to avoid the glare of the light. Their food appears to be large moths, beetles, grasshoppers, ants, and such insects as frequent the bark of decaying timber. Sometimes, in the dark, they will skim within a few feet of a person, making a low chatter as they pass. They also, in common with other species, flutter occasionally round domestic cattle, to catch the insects which approach or rest on them; and hence the mistaken notion of their sucking goats. The whip-poor-will is nine and a half inches long, and nineteen in the stretch of the wings; mouth very large, and beset along the sides with a number of long, thick bristles, the longest extending more than half an inch beyond the point of the bill; the plumage above intricately variegated with black, brownish-white and rust color, sprinkled with numerous streaks and spots.

Whirligig; an instrument of punishment, frequently used in the middle ages, and, in later times, on the continent of Europe. In England, it seems to have been employed chiefly in the army, to punish trifling offences, committed by sutlers, Jews, brawling women, and such persons. It is a kind of circular wooden cage, turning on a pivot, and, when set in motion, whirling round with such velocity that the delinquent becomes extremely sick. The punishment was generally public. This instrument is sometimes used in insane hospitals, to overcome the obstinacy of lunatics.

Whirlpool. When two opposite currents, of about equal force, meet, they sometimes, especially in narrow channels, turn upon a centre, and assume a spiral form, giving rise to eddies or whirlpools. The most celebrated of these are the Euripus, near the island of Eubœa, in the Grecian Archipelago; Charybdis (q. v.), in the strait between Sicily and Italy; and the Maelstrom (q. v.), off the coast of Norway. When agitated by tides or winds, they sometimes become dangerous to navigators.

Whirlwinds sometimes arise from winds blowing among lofty and precipitous mountains, the form of which influences their direction, and occasions gusts to descend with a spiral or whirling motion. They are frequently, however, caused by two winds meeting each other at an angle, and then turning upon a centre. When two winds thus encounter one another, any cloud which happens to be between them is, of course, condensed, and turned rapidly round; and all substances, sufficiently light, are carried up into the air by the whirling motion which ensues. The action of a whirlwind at sea occasions the curious phenomenon called a *water-spout*, which is thus described by those who have witnessed it:—From a dense cloud a cone descends, in the form of a trumpet, with the small end downwards: at the same time, the surface of the sea under it is agitated and whirled round, the waters are converted into vapor, and ascend, with a spiral motion, till they unite with the cone proceeding from the cloud: frequently, however, they disperse before the junction is effected. Both columns diminish towards their point of contact, where they are not above three or four feet in diameter. In the middle of the cone forming the water-spout, there is a white transparent tube, which becomes less distinct on approaching it; and it is then discovered to be a vacant space, in which none of the small particles of water ascend; and in this, as well as around the outer edges of the waterspout, large drops of rain precipitate themselves. In calm weather, waterspouts generally preserve the perpendicular in their motion; but when acted on by winds, they move on obliquely. Sometimes they disperse suddenly; at others, they pass rapidly along the surface of the sea, and continue a quarter of an hour or more before they disappear. A notion has been entertained that they are very dangerous to shipping, owing to the descent, at the instant of their breaking, of a large body of water sufficient to sink a ship; but this does not appear to be the case, for the water descends only in the form of heavy rain. It is true, that small vessels incur a risk of being overset if they carry much sail; because sudden gusts of wind, from all points of the compass, are very common in the vicinity of water-spouts.

Whiskey; signifying originally *water*, but applied, in Ireland, and in the highlands and islands of Scotland, to strong waters, or distilled liquors. From these countries, the name has now spread into many others. In the U. States, whiskey is distilled in large quantities, generally from wheat, rye or maize. Potsheen is a kind of whiskey which the Irish distil illegally in their hovels. Mountain dew (q. v.) is a kind of Scotch whiskey. Usquebaugh (q. v.) is etymologically related to whiskey.

Whist. The laws of this game, as taken from Hoyle, are as follows:—*Of Dealing*. 1. If a card is turned up in dealing, the adverse party may call a new deal, if they think proper; but if either of them have been the cause of turning up such card, then the dealer has the option. 2. If a card is faced in the deal, there must be a fresh deal, unless it happens to be the last deal. 3. It is the duty of every person who plays, to see that he has thirteen cards. If any one happens to have only twelve, and does not find it out till several tricks are played, and the rest have their right number, the deal stands good, and the person who played with the twelve cards is to be punished for each revoke, provided he has made any. But if any of the rest of the players should happen to have fourteen cards, in that case the deal is lost. 4. The dealer should leave his trump card upon the table till it is his turn to play; and after he has mixed it with his other cards, no one has a right to demand what card was turned up, but may ask what is trumps. In consequence of this law, the dealer cannot name a wrong card, which otherwise he might have done. 5. None of the players may take up or look at their cards while they are dealing out. When this is the case, the dealer, if he should happen to miss deal, has a right to deal again, unless it arises from his partner's fault; and if a card is turned up in dealing, no new deal can be called, unless the partner was the cause of it. 6. If any person deals, and, instead of turning up the trump, he puts the trump card upon the rest of his cards, with the face downwards, he loses his deal.—*Of Playing out of Turn*. 7. If any person plays out of his turn, it is in the option of either of his adversaries to call the card so played, at any time in that deal, provided it does not make him revoke; or either of the adversaries may require of the person who ought to have led, the suit the said adversary may choose. 8. If a person supposes he has won the trick, and leads again before his partner has played, the adversary may oblige his partner to win it if he can. 9. If a person leads, and his partner plays before his turn, the adversary's partner may do the same. 10. If the ace or any other card of a suit is led, and the last player should happen to play out of his turn, whether his partner has any of the suit led or not, he is neither entitled to trump it, nor to win the trick, provided you do not make him revoke.—*Of Revoking*. 11. If a revoke happens to be made, the adversary may add three to their score, or take three tricks from the revoking party, or take down three from their score; and if up, notwithstanding the penalty, they must remain at nine: the revoke takes place of any other score of the game. 12. If any person revokes, and discovers it before the cards are turned, the adversary may call the highest or lowest of the suit led, or call the card then played, at any time when it does not cause a revoke. 13. No revoke can be claimed till the trick is turned and quitted, or the party who revoked, or his partner, have played again. 14. If a revoke is claimed by any person, the adverse party are not to mix their cards upon forfeiture of the revoke. 15. No person can claim a revoke after the cards are cut for a new deal.—*Of calling Honors*. 16. If any person calls, except at the point of eight, the adversary may call a new deal if they think proper. 17. After the trump card is turned up, no person must remind his partner to call, on penalty of losing one point. 18. No honors in the preceding deal can be set up, after the trump card is turned up, unless they were before claimed. 19. If any person calls at eight, and his partner answers, and the adverse party have both thrown down their cards, and it appears they have not the honors, they may either stand the deal or have a new one. 20. If any person answers without having an honor, the adversary may consult, and stand the deal or not. 21. If any person calls at eight, after he has played, it is in the option of the adverse party to call a new deal.—*Of separating and showing the Cards.* 22. If any person separates a card from the rest, the adverse party may call it, provided he names it and proves the separation; but if he calls a wrong card, he or his partner are liable for once to have the highest or lowest card called in any suit led during that deal. 23. If any person, supposing the game lost, throws his cards upon the table, with their faces upwards, he may not take them up again, and the adverse party may call any of the cards when they think proper, provided they did not make the party revoke. 24. If any person is sure of winning every trick in his hand, he may show his cards; but he is then liable to have them called.—*Of omitting to play to a Trick.* 25. If any person omits playing to a trick, and it appears he has one card more than the rest, it is in the option of the adversary to have a new deal.—*Respecting who played a particular Card.* 26. Each person, in playing, ought to lay his card before him; and if either of the adversaries mix their cards with his, his partner may demand each person to lay his card before him, but not to inquire who played any particular card.

Whiston, William, an English divine and mathematician, born in 1667, studied at Clare hall, Cambridge, where he applied himself particularly to mathematics, and displayed his predominant disposition by composing religious meditations. Having taken his first degree in 1690, he was chosen a fellow of his college, and became an academical tutor. Entering into holy orders, he was appointed chaplain to doctor Moore, bishop of Norwich. In 1696, he published a Theory of the Earth, on the principles of the Newtonian philosophy. In 1700, he was appointed deputy professor of mathematics at Cambridge, by sir Isaac Newton, who, three years after, resigned the professorship in his favor. In 1706, he published an Essay on the Revelation of St. John; and the next year, he became Boylean lecturer; and his sermons on that occasion, on the Accomplishment of Scripture Prophecies, were printed in 1708 (8vo.). He had now conceived doubts concerning the doctrine of the Trinity; and, having at length adopted Arian opinions, he was expelled from the university in 1710, and, the following year, was deprived of his professorship. He then removed to the metropolis, and gave lectures on astronomy; but the publication of his Primitive Christianity revived, in 1712 (5 vols., 8vo.), subjected him to the notice of the convocation, and he was prosecuted as a heretic, though the proceedings were ultimately terminated by an act of grace in 1715. Being refused admission to the sacrament at his parish church, he opened his own house for public worship, using a liturgy of his own composition; and towards the close of his life he became a Baptist. In 1719, he published a letter On the Eternity of the Son of God and his Holy Spirit, which prevented him from being chosen a fellow of the royal society, where he was proposed as a candidate in 1720. He subsequently distinguished himself by an abortive attempt to discover the longitude, and by his professed opinions relative to an approaching millennium, and the restoration of the Jews. Among his latest labors were his Memoirs of My own Life (1749—50, 3 vols., 8vo.). He died in London in 1752. Besides numerous original productions, he published a translation of the works of Josephus, with notes, dissertations, &c.

Whitaker, John, an English divine and antiquary, born at Manchester about 1735, was educated at Oxford, and became a fellow of Corpus Christi college. He began to distinguish himself as an inquirer into English antiquities, by the publication, in 1771, of the first volume of his History of Manchester, including disquisitions relative to the state of Britain under the dominion of the Romans. The same year appeared his Genuine History of the Britons asserted; and this was followed, in 1775, by the second volume of his former work, relating to the Saxon period of English history. Having taken orders, he obtained, in 1778, the college living of Ruan Lanyhorne, in Cornwall. He published, in 1783, a course of sermons on death, judgment, heaven and hell; and, in 1787, appeared his Mary Queen of Scots vindicated (3 vols., 8vo.), which exhibits much research and zeal for the memory of Mary. Among the later productions of his pen were The Course of Hannibal over the Alps ascertained (2 vols., 8vo.); The Origin of Arianism disclosed; The Ancient Cathedral of Cornwall historically surveyed (2 vols., 4to.); and Gibbon's History reviewed (1791, 8vo.). He was a contributor to the English and Anti-Jacobin Reviews, and the British Critic. His death took place in October, 1808.

Whitbread, Samuel, for several years a leading member of the house of commons, was the son of an eminent brewer of the same name, to whose extensive business he succeeded. He was born in London, in 1758, and was educated at Eton, whence he was removed to St. John's college, Cambridge; after which he made the tour of Europe, under the care of Mr. Coxe. Soon after his return, he married the daughter of sir Charles (afterwards earl) Grey, and, in 1790, was returned to the house of commons for the borough of Steyning; but for the greater part of his life, he represented the town of Bedford, in which borough and county he possessed a large landed property. He immediately became an active member of the opposition headed by Mr. Fox, but distinguished himself by acting, on many occasions, agreeably to his own views, independently of his party. For many years, he was esteemed one of the most shrewd and vigorous opponents of the Pitt administration, and of the war growing out of the French revolution. He was also the conductor of the impeachment against lord Melville, which, although terminating in acquittal, threw a shade over the close of that statesman's life, and proved a source of extreme concern to the premier. Of the political opinions of Mr. Whitbread, those who study the history of the period in which he acted a very conspicuous part in parliament, will judge by their own; but few will be disposed to deny him the praise of being, for many years, a most able, useful and active senator. The close of his life was melancholy: an over-anxious attention to business in general, but, more especially, to the intricate concerns of Drury lane theatre, produced a temporary aberration of intellect, during which, he suddenly terminated his own life, in 1815.

Whitby; a seaport of England, in the north riding of Yorkshire, situated at the mouth of the Esk, on the German sea; 46 miles north-east of York, 243 north of London; lon. 1° 55′ W.; lat. 54° 30′ N.; population, in 1821, 10,275; in 1831, 11,720. The Esk forms the harbor, and divides the town into two nearly equal parts, connected by a draw-bridge, so constructed as to admit ships of 500 tons to pass. By the reform act of 1832, it was constituted a borough, returning one member to parliament. Whitby carries on a great trade in coals, and also exports various articles of provision, tallow, &c.; and the alum works in the neighborhood employ a great number of hands. Ship-building is carried on here extensively. The immense mountain of alum rock, and the works for preparing alum, are interesting objects.

Whitby, Daniel, a learned divine, born in 1638, and died in 1726, was a fellow of Trinity college, Oxford. Having distinguished himself by his zeal in attacking the Catholic writers, he was rewarded by bishop Ward with a prebend in Salisbury cathedral. He took his doctor's degree, but soon after incurred censure for a treatise entitled the Protestant Reconciler. He continued his literary labors, and produced a Paraphrase and Commentary on the New Testament (2 vols., folio); and a treatise on the "Five Points" controverted between the Arminians and Calvinists (8vo., 1710). Towards the close of his life, a complete revolution took place in his literary opinions: he became an Arian, and had a dispute on the subject with doctor Waterland. He left a book called the Last Thoughts of Doctor Whitby.

White. (See *Colors.*)

White, Henry Kirke; a youthful poet of distinguished ability, who was born at Nottingham, March 21, 1785. He was the son of a butcher, and was intended for the same occupation; but the delicacy of his constitution occasioned his destination to be changed for the more sedentary employment of a stocking-weaver. From his infancy, he manifested an extraordinary love of learning, and, at the age of fourteen, produced specimens of poetry worthy of preservation. He was now removed from the stocking-loom to be placed in an attorney's office, and devoted his spare time to the study of Latin and Greek. Increase of knowledge inspired him with the desire to obtain more favorable opportunities for improving his talents; and the advantage of a university education, with the prospect of entering the church, became the great object of his ambition. At length, through the generosity of Mr. Wilberforce, and the exertions of the reverend Charles Simeon, he was admitted a student of St. John's college, Cambridge. There he applied himself to his studies with such unremitting labor, that his health became deranged, and he died Oct. 19, 1806, deeply lamented, both on account of his virtues and his talents. He published, in 1803, a poem called Clifton Grove; and, after his death, his Remains, consisting of poems, letters and fragments, were edited by Robert Southey (2 vols., 8vo.).

White Ants. (See *Termites.*)

White Bear. (See *Bear.*)

White Horse Vale; a vale in England, in Berkshire, so called from the figure of a horse in a galloping posture, cut in the side of a chalky hill, as is supposed in memory of a great victory gained by Alfred over the Danes in the year 871. The villagers in the neighborhood have a custom, from time immemorial, of assembling about midsummer for what they term "scouring the horse," when they remove every weed or obstacle that may have obstructed his figure, and retire to spend the evening in various rural sports.

White Lead. (See *Ceruse.*)

White Mountains; the highest mountains in the U. States east of the Mississippi, situated in the northern part of New Hampshire, nearly in the centre of the county of Coos, and extending about twenty miles from north-east to south-west, being the most elevated summits of a long range that extends much farther in a south-west direction. Their base is eight or ten miles broad. They are about twenty-five miles south-east of Lancaster, seventy north of Concord, eighty-two north-by-west from Portsmouth; lat. 44° 15′ N.; lon. 71° 20′ W. They are covered with ice and snow nine or ten months in the year; and, although more than sixty miles from the nearest part of the Atlantic coast, are distinctly seen for a considerable distance at sea. The highest peak is called mount Washington. The next, south of this, is Monroe; the next, farther south, is Franklin; and Pleasant is the third in that direction. The first north of Washington is Jefferson; the second is Adams; the eastern part is Madison. These are the names commonly given to the principal peaks. Their elevation has been a subject of much speculation. It was formerly supposed to be ten or eleven thousand feet; but the barometrical measurements of captain Partridge, and those of Brackett and Weeks, by means of a spirit level, so nearly agree, that we have no longer any reason to doubt that their height was greatly overrated. The measurements of captain Partridge are here given, and the mountains are arranged from north to south:—

Mount Adams,	5328	feet.
" Jefferson,	5058	"
" Washington,	6234	"
" Monroe,	4932	"
" Franklin,	4711	"
" Pleasant,	4356	"
" Madison (the eastern peak),	4866	"
The base of the mountains,	1770	"

The elevations here given are estimated from the level of the ocean. Subsequent measurements made by captain Partridge do not perfectly agree with these. These mountains are decidedly of primitive formation. The three highest peaks are composed entirely of fragments of rocks, heaped together in confusion, but pretty firmly fixed in their situations. They consist of granite and gneiss, and are excessively rough, from the great size of the crystals. There is considerable mica in most of them, and in some it is very abundant. The granite contains emeralds, tourmaline and garnets. Crystals of quartz, pyrites, jasper, porphyry, magnetic iron ore, and several other fossils, are found in very small quantities. No indications of volcanoes have been discovered. In sublimity of scenery, these mountains far excel any others in New England; and it has become fashionable to visit them during the warmest months. Some of the largest rivers of New England originate in these mountains. The Saco flows from their eastern side; the branches of the Ameriscoggin from the north; the Amonoosuck, from the west, flows into the Connecticut; and the Pemigewasset flows from the south, and is the principal branch of the Merrimack. Trees are found on the sides of these mountains; but, as the traveller ascends, he sees the vegetation become small and meagre, and it ceases before he reaches the highest summits.—The *Notch of the White Mountains* is a very narrow defile, extending two miles in length, between two huge cliffs. The entrance of the chasm is formed by two rocks standing perpendicular at the distance of twenty-two feet from each other, one twenty-two, and the other twelve feet high. The mountain, otherwise a continued range, is here cloven asunder, opening a passage for the waters of Saco river. The gap is so narrow that space has with difficulty been obtained for the road from Lancaster to Portland. About half a mile from the entrance of the Notch is seen a most beautiful cascade issuing from a mountain on the right, about 800 feet above the valley. This is called, by Dwight, the Silver cascade. Another, called the Flume, falls from a height of about 250 feet, over three precipices, from the first two in a single sheet, and from the third in three streams, which unite in a basin at the bottom. Good descriptions of the White mountains are contained in Dwight's *Travels; New England Journal;* and *N. H. Hist. Coll. for* 1823.

White Plains; a post-township, and half shire town, of Westchester county, New York, thirty miles from the city, six east of the Hudson, and fourteen south of Bedford. This place was rendered memorable by a battle fought here, Oct. 28, 1776, between the American and British troops, and by many other important incidents of that period.

White Rent. (See *Quit Rent.*)

White River, in Arkansas, has its source in the Black mountains, which divide its waters from those of the Arkansas. The western branches rise, and run a long distance, in Missouri. It receives many large tributaries, and traverses much valuable territory. Its waters are remarkably pure and transparent. Where it flows into the Mississippi, it is 300 yards wide. It is supposed to be navigable for boats 1200 miles; but this is only 500 miles in a direct line. The country on its banks has been sufficiently explored to prove that it affords every inducement to settlers; but no extensive settlements have yet been made. About seven miles from its mouth, it gives off a bayou as broad as itself, that runs at right angles with it, and flows through a deep, inundated forest, and unites with the Arkansas. It strikes that river thirty miles from its mouth. It is not navigable in the latter part of summer; but, at other times, boats which descend the Mississippi with the intention of ascending the Arkansas, always proceed through the White river and this bayou. The Arkansas does not receive this tribute constantly from the White: the bayou runs either way, according to the level of the water at its two ends. The White river will probably furnish water-power for immense manufacturing establishments at a period not far distant.

White Sea; a large gulf of the Arctic ocean, between the peninsula of Caniu and the coast of Lapland. It penetrates into the Russian territory, to the depth of between 300 and 400 miles. Its shape is long and narrow; its greatest extent from west to east. It extends from lon. 32° to 46° E., and from lat. 63° 45′ to 68° 25′ N. It receives its name from its being frozen over and covered with snow during the greater part of the year. It is navigable only from the middle of May to the end of September. The shores are surrounded by rocks and small islands; and about thirty rivers, among which the principal are the Northern Dwina, the Onega, and the Mezene, empty themselves into the sea. The mouth of the latter forms a bay, on which is situated the town of Mezene. The Dwina enters the sea by two mouths, which are separated by an island. Upon its banks lies Archangel (q. v.), founded in 1584, and the commercial emporium of this region. Among the islands of the White sea, the largest is the Solovetskoi or Soloffski isle, in the bay of Onega. Two canals, uniting the Dwina with the Wolga and the Dnieper, connect the White sea with the Caspian and Black seas.

White Swelling, or **Hydarthrus** (from ὕδωρ, water, and ἄρθρον, a joint). Systematic writers have generally distinguished this terrible disease into two kinds, namely, rheumatic and scrofulous. The last species of the disease they also distinguish into such tumors as primarily affect the bones, and then the ligaments and soft parts; and into other cases, in which the ligaments and soft parts become diseased before there is any morbid affection of the bones. The knee, ankle, wrist and elbow are the joints most subject to white swellings. The pain is sometimes vehement from the very first; in other instances, there is hardly the least pain in the beginning of the disease. Sometimes the pain continues without interruption; sometimes there are intermissions; and, in other instances, the pain recurs at regular times, so as to have been called, by some writers, periodical. At the commencement of the disease, in the majority of instances, the swelling is very inconsiderable, or there is even no visible enlargement whatever. In the little depressions naturally situated on each side of the patella, a fulness first shows itself, and gradually spreads all over the affected joint. The patient, unable to bear the weight of his body on the disordered joint, in consequence of the great increase of pain thus created, gets into the habit of only touching the ground with his toes; and the knee, being generally kept a little bent, in this manner, soon loses the capacity of becoming extended again. When white swellings have lasted a while, the knee is almost always found in a permanent state of flexion. In scrofulous cases of this kind, pain constantly precedes any appearance of swelling; but the interval between the two symptoms differs very much in different subjects. The morbid joint, in the course of time, acquires a vast magnitude. Still the integuments retain their natural color, and remain unaffected. The enlargement of the articulation, however, always seems greater than it really is, in consequence of the emaciation of the limb both above and below the disease. As the distemper of the articulation advances, collections of matter form about the part, and at length burst. The ulcerated openings sometimes heal up; but such abscesses are generally followed by other collections, which pursue the same course. In some cases, these abscesses form a few months after the first affection of the joint: on other occasions, several years elapse, and no suppuration of this kind makes its appearance. The patient's health becomes gradually impaired: he loses his appetite and natural rest and sleep: his pulse is small and frequent; and obstinate debilitating diarrhœa, and profuse nocturnal sweats, ensue.—Rheumatic white swellings are very distinct diseases from the scrofulous distemper of large joints. In the first, the pain is said never to occur without being attended with swelling. Scrofulous white swellings, on the other hand, are always preceded by a pain, which is particularly confined to one point of the articulation. In rheumatic cases, the pain is more general, and diffused over the whole joint. External irritation, either by exposure to damp or cold, or by the application of violence, is often concerned in bringing on the disease; but very frequently no cause of this kind can be assigned for the complaint. As for scrofulous white swellings, there can be no doubt that they are under the influence of a particular kind of constitution, termed a *scrofulous* or *strumous* habit. In this sort of temperament, every cause capable of exciting inflammation, or any morbid and irritable state of a large joint, may bring on such disorder as may end in this disease.

White Thorn. (See *Hawthorn.*)

White Ware is made of pipe-clay, which contains so little of oxide of iron, that it does not turn red in burning. In Wedgwood's manufactory, the clay is prepared by bringing it to a state of minute division by the aid of machinery. This machinery consists of a series of iron blades, or knives, fixed to an upright axis, and made to revolve in a cylinder, and intersecting or passing between another set of blades, which are fixed to the cylinder. The clay is thus minutely divided, and, when sufficiently fine, is transferred to a vat. It is here agitated with water until it assumes the consistence of a pulp, so thin that the coarser or stony particles subside to the bottom after a little rest, while the finer clay remains in suspension. This last is poured off and suffered to subside; after which it is passed through sieves of different fineness, and becomes sufficiently attenuated for use. To this clay is added a certain quantity of flint, reduced to powder by heating it red-hot, and throwing it into cold water to diminish the cohesion of its parts. Afterwards, it is pounded by machinery, ground in a mill, sifted, and washed precisely as the clay is treated, and made into a similar pulp. In this state, the two ingredients are intimately mixed together. The addition of flint lessens the shrinking of the clay in the fire, and thus renders it less liable to warp and crack in the burning. At the same time, by its partial fusion, it communicates to the ware that beautiful translucency which is so much admired in porcelain, and of which the simple clay wares are destitute. (See *Pottery*, and *Porcelain.*) The fine pulp of flint and clay being intimately mixed, is then exposed to evaporation by a gentle heat, until the superfluous water is dissipated, and the mass reduced to a proper consistency to work. To produce a uniformity in the thickness of the material, it is taken out in successive pieces, which are repeatedly divided, struck, and pressed together, till every part becomes blended with the rest.—See Bigelow's *Technology* (2d ed., Boston, 1832).

Whitefield, George, founder of the Calvinistic Methodists, was born at Gloucester, where his parents kept the Bell inn, Dec. 16, 1714. He was the youngest of seven children; and his father dying in his infancy, the care of his education devolved upon his mother. He was sent to a grammar school at Gloucester, where he distinguished himself by a ready memory and good elocution. Being destined to assist his mother in the business of the inn, he was taken early from school, and for some time officiated in a blue apron as drawer. At the age of eighteen, however, he embraced an offer of being entered as servitor at Pembroke college, Oxford, where he became acquainted with the Wesleys, and joined the small society which procured them the name of Methodists. (See *Methodists*, and

Wesley.) Here, in addition to religious preaching, reading, and visits to gaols and to the poor, he describes himself as lying whole days, and even weeks, on the ground in prayer, choosing the worst sort of food, and dressing in a patched gown and dirty shoes, to acquire a habit of humility. Hearing of his devotional tendencies, doctor Benson, bishop of Gloucester, made him an offer of ordination, at the early age of twenty-one, which he accepted; and he was ordained a deacon in 1736. Such was his strain of preaching, that, at his first sermon at Gloucester, a complaint was made to the bishop that he had driven fifteen people mad; on which the prelate observed that he hoped the madness would not be forgotten before the next Sunday. The week following, he returned to Oxford, where he graduated B. A., and soon after was invited to London, to officiate at the chapel of the Tower. He preached, also, at various other places, and for some time supplied a curacy at Dummer, in Hampshire. The account sent him by the Wesleys of their progress in Georgia, at length excited in him a desire to assist in their pious labors; and, embarking at the close of 1737, he arrived at Savannah in the following May, where he was received with great cordiality, and acquired considerable influence. Observing the deplorable want of education in the colony, he projected an orphan-house, for which he determined to raise contributions in England, where he arrived in the beginning of 1739. Although discountenanced by many of the clergy, bishop Benson did not scruple to confer on him priest's orders; and, on repairing to London, the churches in which he preached were incapable of holding the crowds who assembled to hear him. He now adopted the design of preaching in the open air, which he seems first to have practised at Kingswood, near Bristol, among the colliers. His ardent and emphatic mode of address attracted several thousands of these people as auditors, on whom his discourses produced a surprising effect, and whose vicious manners and habits he visibly improved. He afterwards preached in the open air in Bristol, and in Moorfields, Kennington, and other places in the neighborhood of London, to vast assemblages of people, who came from all parts to hear him. In August, 1739, he again embarked for America, and made a tour through several of the provinces, where he preached to immense audiences, with an effect which is portrayed, in a very forcible manner, in the autobiography of Benjamin Franklin. He arrived at Savannah in January, 1740, where he laid the foundation of the orphan-house, and, after making another extensive tour, returned to England, where he arrived in the March of the following year. During his absence, his cause had been declining at home; and the differences between him and Wesley, on the doctrines of election and reprobation, deprived him of many followers. His circumstances were also embarrassed by his engagements for the orphan-house; but his zeal and intrepidity gradually overcame all difficulties, and produced the two tabernacles in Moorfields and in Tottenham-court-road. After visiting many parts of England, Scotland and Wales, where he married in 1744, he again returned to America, and remained there nearly four years, not returning until July, 1748. He was soon after introduced to the countess of Huntingdon, who made him one of her chaplains. A visit to Ireland, and two more voyages to America, followed, and, for several years, his labors were unremitting. At length, on his seventh voyage to America, he was carried off by an asthma, at Newburyport, in New England, Sept. 30, 1770, in the fifty-sixth year of his age. The person of Whitefield was tall and well-proportioned, and his features good, with the exception of a cast in one of his eyes. He possessed a high degree of natural eloquence; but his learning and literary talents were mean, and he was a writer only for his own followers. His works were published in 1771 (6 vols., 8vo.).

Whitehall; a street in Westminster (q. v.), containing several public offices. Among these are the Horse-Guards, an edifice so called in consequence of being the station where that part of the troops usually do duty; here is the office of the commander-in-chief of the army: the Treasury, a stone building, near the Horse-Guards, facing the parade; the treasury-board is held in this building, that part of the Treasury which fronts Whitehall is a portion of the old Whitehall palace, erected by cardinal Wolsey, but it has been considerably altered, both in the reign of Charles II and in 1816: the admiralty office, a large pile, built on the site of Wallingford house; the front has two wings and a portico, supported by four large stone pillars of the Ionic order; besides a hall and other public apartments, here are spacious houses for seven commissioners of the admiralty; and on the top of the building is a semaphore telegraph, by means of which a correspondence is maintained with various parts of the coast.—On the bank of the Thames was a palace called *Whitehall*, built by Hubert de Burgh, earl of Kent, before the middle of the thirteenth century. In 1530, it became the residence of the court, but, in 1697, was destroyed by fire, except the banqueting-house, added by James I, according to a design of Inigo Jones, in 1619. This is a magnificent structure of hewn stone. The building chiefly consists of one room, of an oblong form, forty feet high. The ceiling, representing the apotheosis of James I, was painted by Rubens, and has been retouched by Cipriani. It is adorned with trophies taken from the French in the Spanish campaign.

Whitehall; a large post-township of New York, in Washington county, at the head of Champlain canal, and at the south end of lake Champlain, twenty-five miles south of Ticonderoga, seventy north of Albany. It is situated on both sides of Wood creek, at its entrance into the lake. Population in 1830, 2888. It is a place of considerable trade, and is the great thoroughfare between New York and Montreal. A steam-boat plies between Whitehall and St. John's. (See *Canals*.)

Whitehaven; a seaport of England, in Cumberland, situated on a bay of the Irish sea, forty miles south-west of Carlisle, 303 north-west of London; lon. 3° 34′ W.; lat. 54° 32′ N.; population in 1821, 12,436; in 1831, 11,393. It has a good artificial harbor, with six piers; also six yards for ship-building. The coal mines in the vicinity form the principal source of the wealth of this town. By the reform act of 1832, Whitehaven was constituted a borough, returning one member to parliament.

Whitehead, George, an eminent early leader among the Friends, was born at Semteyg, in Westmoreland, about 1636, and received his education at the free school of Blencouwe, in Cumberland. On leaving school, he was for some time engaged in the instruction of youth; but, as early as the age of eighteen, his journal exhibits him travelling in various parts of England, propagating his religious principles. He endured, as might be expected from the spirit of the times, much persecution, was imprisoned many times, and, in one instance, sentenced to be whipped, which ignominy he calmly endured, and proceeded to preach as before. After the revolution, he was serviceable to the society of Friends by his active services during the time the toleration bill was before parliament, and in making those representations which led, in civil cases, to the admission of an affirmation in lieu of an oath, as well as to other relief. This active, able and determined character lived to a very advanced period, dying, in great respect and esteem, in March, 1723, at the age of eighty-six years. Besides various publications, chiefly controversial, he left behind him some Memoirs of his Life, which were printed in 1725, in 1 vol., 8vo. (See *Quakers*.)

Whitehead, Paul, an English poet, was born in London, in 1710, and was apprenticed to a mercer in the city. In consequence of having joined Fleetwood, manager of Drury lane theatre, in a bond for £3000, he was confined several years in prison. His first productions were three poems, entitled the State Dunces (1733), Manners (1738), and Honor, a satire. The second produced a prosecution of his bookseller, Dodsley. These circumstances drew on him a considerable share of public notice. Having obtained the appointment of deputy-treasurer to the exchequer, he passed the remainder of his days in retirement at Twickenham. He died in 1774. Besides the writings already enumerated, he was the author of a poem entitled the Gymnasiad (printed in 1774). As an author, he appears to have possessed more judgment than genius; and his works, though popular in their day for their temporary allusion, are now little read. As a man, his morals may be judged of by the fact of his having been a member of the club at Medmenham abbey, the sensual orgies of which were exposed, in revenge, by Wilkes, when prosecuted for his Essay on Woman. Whitehead, however, in the decline of life, acted a benevolent, hospitable and respectable part. A complete edition of his works was first published by Kearsley, in 1777, with a biographical memoir.

Whitehead, William, an ingenious poet, the son of a baker of Cambridge, was born in 1715. At the age of fourteen, he was placed at Winchester school, and obtained a foundation scholarship at Clare hall, Cambridge, which led to a fellowship in 1742. About the same period, he produced two of his earliest and best dramatic pieces, Creusa, and the Roman Father. Three years after, he visited Germany, Italy, Switzerland, and the Low Countries, in quality of a travelling tutor, and, on his return to England, obtained the registrarship to the order of the Bath. He was nominated poet laureate, on the vacancy occasioned in that post by the death of Cibber. His death took place in 1785. In addition to the writings already spoken of, he was the author of the School for Lovers, a comedy (1762); Trip to Scotland, a farce (1771); a Charge to the Poets, a satire; Variety; the Goat's Beard; with several other miscellaneous poems. Mason has written his life (1788).

Whitelock, Bulstrode, an eminent statesman and lawyer, the son of sir James Whitelock, a justice of the king's bench, was born in London, in 1605, and received his education at St. John's college, Oxford. He soon obtained eminence as a lawyer, and was consulted by Hampden when under prosecution for refusing to pay ship-money. In 1640, he was chosen M. P. for Marlow, in the long parliament, in which he acted with Selden and the more moderate anti-royalists; but, though averse to the commencement of hostilities, he accepted the office of deputy-lieutenant for Oxfordshire and Buckinghamshire, and took the command of a company of cavalry, raised for the service of parliament. In January, 1642—3, he was one of the commissioners appointed to treat with the king at Oxford, and, in 1644, again interfered to promote a pacification. He appeared as a lay-member of the Westminster assembly for settling the form of church government, when he opposed the divine right of the presbytery. In February, 1648—9, he was nominated one of the council of state, and was subsequently sent, by Cromwell, on an embassy to the court of Christina, queen of Sweden, with whom he concluded a treaty. Returning home, he became a commissioner of the great seal, which office he resigned, on the regulation and limitation of the court of chancery, and was then appointed a commissioner of the treasury. He was member for Buckinghamshire, in Oliver's third parliament, and was called, by the protector, to his house of peers. During the government of Richard Cromwell, he acted as one of the keepers of the great seal, and afterwards opposed the designs of general Monk. At the restoration, he retired to his estate at Chilton, in Wiltshire, where he passed the last years of his life, and died in January, 1676. He was the author of Memorials of the English Affairs, from the Beginning of the Reign of Charles I to the Restoration (1682, folio, an improved edition of which appeared in 1732); Memorials of the English Affairs from the supposed expedition of Brute to this Island, to the End of the Reign of James I (1706, folio); Notes upon the King's Writ for choosing Members of Parliament, 13 *Car. II*, being Disquisitions on the Government of England (1766, 2 vols., 4to.); a Journal of the Swedish Embassy, in 1653 and 1654, from the Commonwealth of England, &c. (1772, 2 vols., 4to.); and Whitelock's Labors, remembered in the Annales of his Life, written for the Use of his Children.

Whitewood. (See *Tulip-Tree.*)

Whiting (*gadus merlangus*); a fish, belonging to the cod family, very abundant along the northern coasts of Europe, but unknown on this side of the Atlantic. It makes its appearance in vast shoals, keeping at the distance of from half a mile to three miles from the shore, and is taken by the line in great numbers. It is considered the most delicate and most wholesome of all the species of cod; but it does not attain a large size, usually not exceeding a foot in length. It resembles the pollock in form, and belongs to the same division of the genus, having three dorsal fins, and the lower lip destitute of a beard. The head and back are pale brown; the lateral line white and crooked; the belly and sides silvery, the latter longitudinally streaked with yellow.

Whiting. Chalk, cleared of its grosser impurities, then ground in a mill, and made up into small loaves, is sold under the name of *whiting*.

Whitlow, in surgery, is an inflammation affecting one or more of the bones of the fingers, and generally terminating in an abscess. In severe cases, the disorder extends to many other parts besides the fingers, making its way above the wrist. There is a similar disorder which attacks the toes. Whitlows differ very much in their degree of violence, and in their depth and extent. Surgical writers usually make four or five varieties. The usual exciting causes of whitlows are various external injuries, as pricks, contusions, &c. The lodgment of a thorn or splinter in the part is another frequent cause. They are much more common in young, healthy persons than in others, and, in many cases, occur without our being able to assign any particular cause for them.

Whitney, Eli, a celebrated mechanician, and the inventor of the cotton gin, was born at Westborough, Worcester county, Massachusetts, Dec. 8, 1765. His father was a respectable farmer. Very early he gave striking indications of the mechanical genius for which he was distinguished. His education was of a limited character until he had reached the age of nineteen, when he conceived the idea of entering a college. Accordingly, notwithstanding the opposition of his parents, he prepared himself, partly by means of the profits of his manual labor, partly by teaching a village school, for the freshman class in the university of New Haven, which he entered, May, 1789. Soon after he took his degree, in the autumn of 1792, he entered into an engagement with a gentleman of Georgia, to reside in his family as a private teacher. But on his arrival in that state, he found that another teacher had been employed, and he was left entirely without resources. Fortunately, however, among the passengers in the vessel in which he sailed, was Mrs. Greene, the widow of the celebrated general, who had given him an invitation to spend some time at her residence at Mulberry grove, near Savannah; and, on learning his disappointment, she benevolently insisted upon his making her house his home until he had prepared himself for the bar, as was his intention. He had not been long in her family before a complete turn was given to his views. A party of gentlemen, on a visit to Mrs. Greene, having fallen into a conversation upon the state of agriculture among them, expressed great regret that there was no means of cleansing the green seed cotton, or separating it from its seed, remarking that until ingenuity could devise some machine which would greatly facilitate the process of cleansing, it was in vain to think of raising cotton for market. "Gentlemen," said Mrs. Greene, "apply to my young friend Mr. Whitney: he can make any thing." She then conducted them into a neighboring room, where she showed them a number of specimens of his genius. The gentlemen were next introduced to Whitney himself; and, when they named their object, he replied that he had never seen either cotton or cotton seed during his life. But the idea was engendered; and it being out of season for cotton in the seed, he went to Savannah, and searched among the warehouses and boats until he found a small portion of it. This he carried home, and set himself to work with such rude materials and instruments as a Georgia plantation afforded. With these resources, however, he made tools better suited to his purpose, and drew his own wire, of which the teeth of the earliest gins were made, which was an article not at that time to be found in the market of Savannah. Mrs. Greene and Mr. Miller, a gentleman who, having first come into the family of general Greene as a private tutor, afterwards married his widow, were the only persons admitted into his workshop, who knew in what way he was employing himself. The many hours he spent in his mysterious pursuits, afforded matter of great curiosity, and often of raillery, to the younger members of the family. Near the close of the winter, the machine was so nearly completed as to leave no doubt of its success. Mrs. Greene then invited to her house gentlemen from different parts of the state; and on the first day after they had assembled, she conducted them to a temporary building which had been erected for the machine, and they saw with astonishment and delight, that more cotton could be separated from the seed in one day, by the labor of a single hand, than could be done in the usual manner in the space of many months. An invention so important to the agricultural interest (and, as it has proved, to every department of human industry) could not long remain a secret. The knowledge of it soon spread through the state; and so great was the excitement on the subject, that multitudes of persons came from all quarters of it to see the machine; but it was not deemed prudent to gratify their curiosity until the patent right had been secured. So determined, however, were some of the populace to possess this treasure, that neither law nor justice could restrain them; they broke open the building by night, and carried off the machine. In this way the public became possessed of the invention, and before Mr. Whitney could complete his model and secure his patent, a number of machines were in successful operation, constructed with some slight deviation from the original, with the hope of evading the penalty for violating the patent right. A short time after this, he entered into partnership with Mr. Miller, who, having considerable funds at command, proposed to him to become his joint adventurer, and to be at the whole expense of maturing the invention until it should be patented. If the machine succeeded in its intended operation, the parties agreed to share equally all the profits and advantages accruing from it. The instrument of their partnership bears date May 27, 1793. Immediately afterwards, Mr. Whitney repaired to Connecticut, where, as far as possible, he was to perfect the machine, obtain a patent, and manufacture and ship for Georgia such a number of machines as would supply the demand. On the twentieth of June, 1793, he presented his petition for a patent to Mr. Jefferson, then secretary of state; but the prevalence of the yellow fever in Philadelphia, at that period the seat of government, prevented his concluding the business until several months afterwards. We have not space sufficient at our disposal to give a satisfactory detail of the obstacles and misfortunes which for a long time hindered the partners from reaping those advantages from the invention which it should have procured for them, and which they had an ample right to expect; and we must therefore refer our readers to an excellent memoir of Mr. Whitney, contained in the number of the American Journal of Science and Arts, conducted by professor Silliman, for January, 1832. These difficulties arose principally from the innumerable violations of their patent right, by which they were involved in various almost interminable lawsuits. The legislature of South Carolina purchased, in 1801, their right for that state for the sum of fifty thousand dollars—a mere "song," to use Whitney's own phrase, "in comparison with the worth of the thing; but it was securing something." It enabled them to pay the debts which they had contracted, and divide something between them. In the following year, Mr. Whitney negotiated a sale of his patent right with the state of North Carolina, the legislature of which laid a tax of two shillings and sixpence upon *every saw* (and some of the gins had forty saws) employed in ginning cotton, to be continued for five years, which sum was to be collected by the sheriffs in the same manner as the public taxes; and, after deducting the expenses of collection, the proceeds were faithfully paid over to the patentees. No small portion, however, of the funds thus obtained in the two Carolinas, was expended in carrying on the fruitless lawsuits which it was deemed necessary to prosecute in Georgia. A gentleman who was well acquainted with Mr. Whitney's affairs in the south, and sometimes acted as his legal adviser, observed in a letter to the author of the memoir above mentioned, that, in all his experience in the thorny profession of the law, he had never seen a case of such perseverance under such persecution; "nor," he adds, "do I believe that I ever knew any other man who would have met them with equal coolness and firmness, or who would have obtained even the partial success which he had." There have, indeed, been but few instances in which the author of such inestimable advantages to a whole country as those which accrued from the invention of the cotton gin to the Southern States, was so harshly treated, and so inadequately compensated, as the subject of this sketch. He did not exaggerate when he said that it raised the value of those states from fifty to one hundred per cent. "If we should assert," said judge Johnson, "that the benefits of this invention exceed *one hundred millions of dollars*, we can prove the assertion by correct calculation." Besides the violations of his right, he had to struggle against the efforts of malevolence and self-interest to deprive him of the honor of the invention, which he did triumphantly. In 1803, the entire responsibility of the whole concern devolved upon him, in consequence of the death of Mr. Miller. In 1812, he made application to congress for the renewal of his patent. In his memorial he presented a history of the difficulties which he had been forced to encounter in defence of his right, observing that he had been unable to obtain any decision on the merits of his claim until he had been eleven years in the law, and thirteen years of his patent term had expired. He set forth that his invention had been a source of opulence to thousands of the citizens of the U. States; that, as a labor-saving machine, it would enable one man to perform the work of a thousand men; and that it furnishes to the whole family of mankind, at a very cheap rate, the most essential article of their clothing. Hence he humbly conceived himself entitled to a further remuneration from his country, and thought he ought to be admitted to a more liberal participation with his fellow citizens in the benefits of his invention. It does, we must confess, strike us with no little surprise, that the southern planters, gentlemen who enjoy a great and just reputation for elevation and generosity of character, should not have taken some means of conveying to Mr. Whitney an adequate and substantial testimony of the gratitude which they must have felt towards one to whom they were so incalculably indebted. So far, however, from this having been the case, even the application just mentioned was rejected by congress on account of the warm opposition it experienced from a majority of the southern members. Some years before, in 1798, Mr. Whitney, impressed with the uncertainty of all his hopes founded on the cotton gin, had engaged in another enterprise, which conducted him, by slow but sure steps, to a competent fortune. This was the manufacture of arms for the U. States. He first obtained a contract through the influence of Oliver Wolcott, at that time secretary of the treasury, for 10,000 stand of arms, amounting to $134,000, which was to be fulfilled within a little more than the period of two years. This was a great undertaking, as may be inferred from the facts, that the works were all to be erected, the machinery was to be made, and much of it to be invented; the raw materials were to be collected from different quarters, and the workmen themselves, almost without exception, were yet to learn the trade. The impediments he was obliged to remove were too numerous and great to allow him to fulfil his stipulation as to time, and eight years, instead of two, elapsed, before the muskets were all completed. The entire business relating to the contract was not closed until January, 1809, when (so liberally had the government made advances to the contractor) the final balance due Mr. Whitney was only $2400. It is universally conceded that his genius and industry greatly contributed to the improvement of the manufacture of arms, and, indeed, to the general advancement of arts and manufactures; for many of his inventions for facilitating the making of muskets were applicable to most other manufactures of iron and steel. In 1812, he entered into a new contract with the U. States for 15,000 stand of arms, and in the mean time executed a similar engagement for the state of New York. In January, 1817, he married the youngest daughter of Pierpont Edwards, late judge of the district court for the state of Connecticut. For the five subsequent years he continued to enjoy domestic happiness, a competent fortune, and an honorable reputation, when he was attacked by a fatal malady, an enlargement of the prostate gland, which, after causing great and protracted suffering, terminated his life on the eighth of January, 1825. In person, Mr. Whitney was considerably above the ordinary size, of a dignified carriage, and of an open, manly and agreeable countenance. His manners were conciliatory, and his whole appearance such as to inspire respect. He possessed great serenity of temper, though he had strong feelings, and a high sense of honor. Perseverance was a striking trait in his character. Every thing that he attempted he effected as far as possible. In the relations of private life, he enjoyed the affection and esteem of all with whom he was connected. With regard to the results of his genius, we may quote the declaration of Fulton, that Arkwright, Watt and Whitney were the three men who did most for mankind of any of their contemporaries.

Whitsuntide. (See *Pentecost*, and *Sunday*.)

Whitworth, Charles, earl, descended of an ancient family in Staffordshire, was born in 1754, at Leoburne-grange, Kent, the seat of his father, sir Charles Whitworth, and was educated at Tunbridge grammar-school, on leaving which he obtained a commission in the guards. He soon quitted the army, and, after going rapidly through the usual subordinate diplomatic situations, was appointed, in 1786, minister plenipotentiary to the court of Poland, then the centre of the intrigues which terminated in the dismemberment and annihilation of that unfortunate kingdom. (See *Poland*.) In the autumn of 1788, he proceeded, in the same capacity, to St. Petersburg, where, in 1793, he received the red riband of the Bath, to give dignity to his mission, the object of which was a coalition against the French revolutionary government. On his return to England in 1800, sir Charles was created baron Whitworth of the kingdom of Ireland, and was soon after again despatched abroad on an embassy to the court of Denmark, then complaining of the right of search exercised by the English ships. An adjustment, which proved but short-lived, took place through his exertions in the August of the same year. The ambassador accordingly returned home, and, in the April following, married the duchess dowager of Dorset. After the treaty of Amiens, concluded by lord Hawkesbury and the marquis Cornwallis, lord Whitworth was accredited as plenipotentiary to Paris towards the close of 1802. His mission having terminated abruptly in the renewal of hostilities, he quitted the French capital, May 13, 1803. In the spring of 1813, he was made one of the lords of the bed-chamber, and, the year following, took his seat in the house as an English peer, by the title of viscount Whitworth. In the August of 1814, he succeeded the duke of Richmond as viceroy of Ireland, which dignity he enjoyed till 1817, when, the usual period of office being expired, he returned to England, having been in the interval advanced to an earldom. Lord Whitworth died in 1825

Wickliff, Wiclef, or De Wycliffe, John, an eminent reformer of Christianity, or, as he is often styled, the Morning Star of the Reformation, was born about 1324, in Yorkshire, near the river Tees, in a parish whence he takes his name. He studied at Queen's college, Oxford, and then at Merton, in the same university, and distinguished himself by his attention to school divinity and the works of Aristotle, the most abstruse parts of whose writings he is said to have committed to memory. He also became intimately conversant with the civil and canon law, and with the laws of England; to which he added a diligent perusal of the Scriptures, and the works of the Latin fathers of the church. As early as 1356, he inveighed against the authority of the pope, in a treatise Of the Last Age of the Church; and, in 1360, he was active in opposing the encroachments and intrigues of the mendicant friars, who took every opportunity to establish their credit and power in the university. In 1361, Wickliff was appointed master of Baliol college, and was presented to a college living; and, in 1365, Simon Islip, the primate, constituted him warden of Canterbury college, which he had then newly founded at Oxford. An equal number of regular and secular priests having been placed as fellows in this college, by the founder, after his death disputes arose, which led to the expulsion of Wickliff and the other three secular members of the college in 1367. On an appeal to Rome, the measure received the sanction of the papal court—a circumstance which naturally exasperated the mind of the ejected warden against the pope. In 1372, he took the degree of D. D., and then delivered lectures on theology with great applause. Disputes at this period existed between king Edward III and the court of Rome, relative to the homage and tribute exacted from king John; and the English parliament had determined to support their sovereign in his refusal to submit to the vassalage, in which his predecessors had been forced to acquiesce. A monk came forward as the advocate of the church; and Wickliff wrote a reply, which made him favorably known at court, and procured him the patronage of John of Gaunt, duke of Lancaster. In 1374, he was sent to Bruges, in Flanders, to confer with the pope's nuncio on the liberties of the English church; and the same year, the king gave him the valuable rectory of Lutterworth, in Leicestershire; and he shortly after obtained a prebend in the collegiate church of Westbury, in Gloucestershire. He had now taken a decided part as to ecclesiastical politics; and having, in his writings, not only charged the bishop of Rome with simony, covetousness, ambition and tyranny, but also styled him antichrist, he was denounced as a heretic. Nineteen articles of alleged false doctrine, taken from his works, were transmitted to pope Gregory XI, who, in 1377, returned three bulls, addressed to the archbishop of Canterbury and the bishop of London, ordering the seizure and imprisonment of Wickliff, and requiring the king and government, if necessary, to assist in extirpating the errors he had propagated. Edward III died before the bulls arrived, and the duke of Lancaster, who chiefly ruled the kingdom under his nephew, was the avowed protector of the refractory divine. Therefore, when he appeared at St. Paul's church, on the citation of the two prelates, he was accompanied by a vast concourse of people, and was supported by the duke of Lancaster and the earl marshal; and an altercation taking place between the noblemen and the bishops, the meeting was dissolved in a tumultuous manner. Wickliff afterwards attended at Lambeth palace, and delivered to the two prelates a defence or explanation of the propositions objected against him. The populace flocked together in crowds to protect him; and he was dismissed without any judgment taking place. Pope Gregory XI dying in March, 1378, the commission he had issued expired, and Wickliff escaped further question for the present. In consequence, probably, of anxiety and fatigue, he was seized with a severe fit of illness; on his recovery from which, he applied himself anew, by writing and preaching, to his task of undermining the papal authority. The disputes then existing in the church, between the rival pontiffs, Urban VI and Clement VII, furnished him with an opportunity for exposing the exorbitant pretensions of the court of Rome, of which he freely availed himself. Having, in some of his works, advanced some peculiar notions relative to the Eucharist, they attracted the notice and condemnation of the chancellor of the university of Oxford; on which Wickliff appealed to the king and parliament in 1382; but not being supported, as he had anticipated, by his former patron, John of Gaunt, he was compelled to submission; and he accordingly made a confession of his errors at

Oxford, before archbishop Courtney, six bishops, and other clergymen, who had already condemned his tenets as heretical. The principal points on which Wickliff was condemned by the synod were, 1st. his deviation from orthodox language, respecting the presence of Christ in the sacrament of the altar; 2d. his doctrine, that a pope, bishop or priest, who is in a state of mortal sin, has no authority over the faithful, and that his acts are null; 3d. his assertion, that Scripture prohibits ecclesiastics from having temporal possessions; and, 4th. the position, that where contrition is sincere, confession to a priest is useless. His opinion respecting the Lord's supper is supposed to have nearly resembled that of Luther and his followers. A royal letter was procured by the primate, addressed to the chancellor and proctors, directing them to expel from the university and town of Oxford all who should harbor Wickliff or his followers, or hold any communication with them. He was, however, allowed to retire unmolested to his rectory at Lutterworth, where he continued to preach, and completed a translation of the Scriptures, in which he had engaged some years before. In 1383, he was seized with palsy; and this attack furnished him with an excuse for not making his appearance to a citation of pope Urban VI. A second paralytic stroke terminated his life on the 31st of December, 1384; but his doctrines, or rather his spirit, survived him; and however his successors might vary from him in their exposition of mysterious dogmas, they owed to him the example of an open attack, by a learned clergyman, upon the authority of the church and the jurisdiction of the supreme pontiff. Payne, one of his disciples, carried his system into Bohemia, where it flourished in spite of persecution, and awakened the zeal of Huss, who, although he did not adopt all the doctrines of Wickliff, seems to have shared his hostility to the Roman clergy. (See *Oldcastle*, *Huss*, and *Reformation*.) "The new opinions on religion which now arose," says Mackintosh (History of England), "mingled with the general spirit of Christianity, in promoting the progress of emancipation, and had their share in the few disorders which accompanied it. (See *Wat Tyler*.) Wickliff, the celebrated reformer, had now become one of the most famous doctors of the English church. His lettered education rendered him no stranger to the severity with which Dante and Chaucer had lashed the vices of the clergy, without sparing the corruptions of the Roman see itself. His theological learning and mystical piety led him to reprobate the whole system of wealth and wordliness, by which a blind bounty had destroyed the apostolical simplicity and primitive humility of the Christian religion. Viewing doctrines in this light, he might occasionally fluctuate in his feelings or language respecting them, without being liable to any grave imputation of inconsistency. This temper, however, adds to the difficulty of ascertaining his opinions: necessarily progressive, they could not have been the same at every period of life. It is possible, that if he sometimes yielded to authority, he might have been actuated more by sincere deference than by personal apprehension." The works of Wickliff are numerous, but most of them remain in manuscript, in the libraries of Oxford, Cambridge and Dublin, the British museum, and Lambeth. Among those which have been printed, are Trialogus (1525, 4to.; republished at Frankfort, 1753, 4to.), containing a body of theology, in the form of a conversation between Truth, Falsehood and Wisdom; Wickliff's Wicket, or a Learned and Godly Treatise of the Sacrament (Nuremberg, 1546, 8vo.; reprinted Oxford, 1612, 4to.): the Prologue to his Translation of the Bible, published by R. Crowley, under the title of the Pathway to Perfect Knowledge (1550, 12mo.); and his version of the New Testament (first edited by the reverend J. Lewis, London, 1731, folio, and more recently by Baber, 1810, 4to.). The version of the Old Testament remains unprinted. Wickliff was a bold and original speculator, both in religion and politics; and the influence of his writings on the state of public opinion in Germany, may be estimated from the proceedings against him at the council of Constance, after his death, when, his sentiments being condemned on the score of heresy, his bones were ordered to be taken up and burnt; and this sentence was afterwards (1425) executed. Among many biographical memoirs relating to him, may be mentioned the Life and Opinions of John de Wycliffe, principally from his unpublished Manuscripts, by Robert Vaughan (2 vols., 8vo., 1828), and Lebas's Life of Wickliff (1832).

WICQUEFORT, Abraham de, an eminent publicist of the seventeenth century, was born at Amsterdam, in 1598. The early part of his life was spent in Germany; and the elector of Brandenburg, in

1626, appointed him to take charge of his interests at the court of Paris. In this capacity he continued to reside at the French capital till 1658, when a suspicion arising of his having made improper disclosures to the states-general, he was arrested at the instance of cardinal Mazarin, and sent to the Bastile. After a twelvemonth's imprisonment in this fortress, he obtained liberty to return to Holland. De Witt (q. v.), then at the head of the Dutch government, gave him the appointment of historiographer to the states, and induced him to undertake the task of writing a history of his native country, while the duke of Brunswick-Lunenburg made him his resident at the Hague. But he was arrested and condemned to perpetual imprisonment, for conveying intelligence to the enemies of his country. By the courage of one of his daughters, however, he escaped, after a confinement of four years, and fled to Zell, in 1679. Here he occupied himself for two years in unavailing attempts to procure a reversion of his sentence, and is said to have died of chagrin, in 1682. Besides his History of the United Provinces, De Wicquefort was the author of a work on diplomacy, entitled *L'Ambassadeur et ses Fonctions* (4to., 2 vols.), and some translations of travels from the Spanish and German languages into Dutch.

Widdin, or **Vidin**; a fortified town, and capital of a sangiacat in Rumelia, on the right bank of the Danube, with 25,000 inhabitants. The sultan Selim III, having formed the design of dissolving the corps of janizaries, and supplying their place by troops organized and disciplined according to the European military system, proceeded to execute his plan, by successively disbanding the different frontier garrisons. The order to discontinue their pay was the signal of insurrection to the garrison of Widdin, commanded by the bold and artful Paswan Oglu. His father had been put to death by the grand vizier, jealous of his power, and covetous of his wealth; and Paswan Oglu had been himself detained as a prisoner. Eager for revenge, he seized the opportunity which now offered itself, and, at the head of the disbanded janizaries, chased the pacha from the town. The inhabitants, discontented with the new impositions that had been made, to meet the expenses of the new military system, readily joined him; and he now proceeded to levy contributions for the support of his authority in the neighboring districts. He also won over the Greeks by promises of religious freedom. In the first campaign (1797), he was almost constantly successful; and the following year he succeeded in compelling the capudan pacha to raise the siege of Widdin, and to retreat, leaving the northern provinces at his mercy. The Porte was finally compelled to yield to his demands, and, in 1798, conferred upon him the dignity of pacha, with the government of Widdin, which he held till his death in 1807.

Widgeon. The American widgeon (*anas Americana*) is a species of duck, common, in winter, along our whole coast from Florida to Rhode Island, but most abundant in Carolina, where it frequents the rice plantations, and is much complained of by the planters. It is often called *bald-pate*, from the white on the top of the head. It is frequently brought to the Baltimore market, and generally sells for a good price, as its flesh is highly esteemed. The widgeon is a constant attendant on the canvass-back duck, by the aid of whose labors it contrives to make a good subsistence, and with whom it lives in a state of perpetual contention. The front and crown are cream-colored; a band of deep, glossy green extends from the eye backwards; the throat, chin and sides of the neck are dull yellowish-white, thickly speckled with black; the breast and hind part of the neck hoary bay; immediately below the wing-coverts is a large spot of white. The same name is given, in Europe, to an analogous species of duck.

Widmer, Samuel, a distinguished mechanician and manufacturer, the nephew of Oberkampf (q. v.), and his successor, was born in 1767, in the Aargau, was instructed by Oberkampf, and studied much himself. He applied Berthollett's chemical process for bleaching linen on a large scale, and, in 1792, invented the mode of printing calico with copper cylinders; but the revolution prevented him from applying this invention to a considerable extent immediately. The machine was capable of doing as much as twenty-four workmen. He then invented a machine for engraving, and, in 1809, the method of heating the water in the dyeing kettles by steam. After this he discovered a dye (*le vert solide d'une seule application*), for which the royal society in London had offered a prize of £2000. Until then, the *vert solide* could be used only by a double application of color, either of indigo upon yellow, or of yellow on indigo. Widmer did not communicate his invention to the royal society, and, of course, did not receive the prize. He afterwards visited England, where sir Joseph Banks received him with much attention. His last invention was a machine for bleaching linen, which is called *hydrocyclephore*, because the water passes in a circular course, and at a boiling heat, into and out of the tin vessels. Louis XVIII gave him the order of the legion of honor. He died in 1824. His private character was that of a charitable and generous man.

Wied. (see *Neu Wied.*)

Wieland, Christopher Martin, was born in the town of Biberach, in Suabia, Sept. 5, 1733, where his father, a Protestant minister, gave him an excellent education. The talents of the young Wieland early attracted the attention of his teachers. In his twelfth year, he composed Latin and German verses. In his fourteenth year, he was sent to Klosterbergen, near Magdeburg. Here he penetrated deeply into the spirit of the ancients. Here, also, he became acquainted with the works of Steele and Addison, though in very imperfect translations, and Shaftesbury made a lasting impression upon him. He also studied Voltaire and D'Argens. In his sixteenth year, he left Klosterbergen, and lived a year and a half with a relation in Erfurt, who prepared him for the university. In 1750, he returned to his native city, where he fell in love with Sophia von Guttermann. In the autumn of 1750, he went, against his inclination, to the university of Tübingen, to study law. He continued to study the literature of his own and foreign countries, and wrote, in 1751, his Ten Moral Letters, addressed to Sophia, which met with a very favorable reception. He also wrote, at this time, a didactic poem called Anti-Ovid, an unimportant production. In 1752, he returned to Biberach, and then went to Zürich as a literary companion to Bodmer. Here he read the works of the authors who then gave a new impulse to German literature—Hagedorn, Gleim, Haller, Schlegel, Gellert, Klopstock, Sulzer and others. Zürich itself contained several distinguished authors. The example of Bodmer, a hasty writer, had much influence on his habits of composition at this time, as appears from the number of his productions at this period. In 1756, the seven years' war (q. v.) broke out. Wieland was inspired by the deeds of Frederic the Great, and intended to write a poem, exhibiting the ideal of a hero, for which purpose he chose the story of Cyrus. The five first cantos appeared in 1757, and the second edition of them in 1759; but the poem remained unfinished. After some unsuccessful attempts in dramatic poetry, he again turned his talent to the more congenial field of Grecian story, and published Araspes and Panthea, an episode from the Cyropædia of Xenophon. In 1754, he left Bodmer's house, became a tutor, and, in 1760, returned to his native town. Various circumstances, among others that of finding the object of his early love married, made him dissatisfied with Biberach. He now undertook a task not very congenial to his previous habits, accustomed as he was to the study of Greek, Roman and French literature, and naturally inclined to light and gay subjects. He translated twenty-eight of Shakspeare's plays (1762—68, 8 vols.). Eschenburg afterwards added the fourteen remaining ones. Wieland soon found a home in the house of count Stadion, who had been minister of the elector of Mayence, was a man of considerable knowledge, and an enemy to all kinds of fanaticism. His intercourse with this new friend produced a decided change in his character. He had previously been prone to religious mysticism, but exhibited, in his subsequent productions, tendencies of an opposite character. Count Stadion's library was particularly rich in French and English literature, and contributed not a little to this change of sentiment in Wieland. He has often been reproached with a predilection for subjects of a voluptuous character, in his subsequent works. It is impossible to exculpate him entirely from this charge; but it ought to be stated that his own life was wholly free from the stain of licentiousness. The first production of his, bearing the impression of Greco-Gallic sensuality was the tale of Nadine, which he himself calls a composition in Prior's manner. This was followed, in 1764, by the Adventures of Don Sylvio of Rosalva, or the Victory of Nature over Fanaticism. In this, Don Quixote was his model; but the work of Wieland was far inferior to that of Cervantes in plan and execution. In 1766 and 1767, appeared his Agathon, which established his reputation. It had occupied him long, and will long preserve his memory. Love continually employed his thoughts, and many fragments of poems by him, on this subject, exist; but his chief work devoted to it is Musarion (1768), a production distinguished for grace, ease and harmony, which he himself calls a philosophy of the graces. In 1770, he wrote the Graces; and the new

Amadis, in 1771, a poem which celebrates the triumph of intellectual over mere physical beauty. The poet treated this subject again, in the latter part of his life, in his Crates and Hipparchia. In 1765, Wieland married, and, in 1769, was appointed *professor primarius* of philosophy at the university of Erfurt. From this time, he no longer occupied himself exclusively with amatory poetry. In his Cupid Accused, he defends this kind of poetry; and in the Dialogues of Diogenes of Sinope (1770), he gave a general vindication of his philosophical views. Under the title Contributions to the secret History of the human Understanding and Heart, from the Archives of Nature (1770), he wrote against Rousseau. The many improvements and noble plans of Joseph II of Austria gave occasion, in 1772, to his Golden Mirror. In 1772, he went to Weimar, in consequence of an invitation from the duchess Anna Amalia of Weimar, to superintend the education of the two princes, her sons. Here he had leisure for literature; and a moderate salary, and the promise of a pension for life, set him at ease. He now turned his attention to dramatic poetry, and wrote his Choice of Hercules, and his Alceste. He also undertook the superintendence of the German Mercury, a monthly journal, which he continued to edit to the end of his life. His views, as exhibited in this journal, showed too much of the narrow conventional spirit of French criticism, and he was, therefore, attacked by Göthe and Herder. The first wrote a satire against him under the title of Gods, Heroes and Wieland, which Wieland answered with his characteristic mildness. Göthe and Herder were soon drawn to Weimar, where the duchess Amalia formed a galaxy of talent and genius, such as has seldom been witnessed. In company with them, Wieland here labored with great activity for more than twenty years. His philosophy breathes the spirit of Socrates, sometimes with a mixture of that of Aristippus. He has enriched German literature with works which have made known to his countrymen the merits of the French and English writers. His historical productions do not constitute large works, but they please by the lively imagination, knowledge of languages, sound judgment and benevolent spirit which they display. These graver occupations did not diminish his poetical fertility, which appeared to great advantage in his History of the Abderites (1773), a delightful work, in which the muse of wisdom appears disguised in the garments of satire. He also wrote tales, partly after foreign originals, partly from his own invention. But Oberon, a romantic epic, is the most successful of his larger works, though the tone and the form are both liable to censure. In addition to his original works, Wieland prepared translations of Horace and Lucian; and, though the scholar will often meet with paraphrases which he may not like, these translations have been of much service to the public at large. Wieland himself declared his Letters and Commentaries on Horace those of his works on which he placed the greatest value, and from which his head, heart, taste, conceptions and character could be best known. From his constant study of Lucian originated (1791) an original work, Peregrinus Proteus, to which his Agathodæmon may be considered a pendant. A uniform edition of his works was published at Leipsic, in two editions, 4to. and 8vo., 36 vols., with six supplementary volumes, 1794, et seq. (new edition by Graber, begun in 1820; a pocket edition, in 16mo., 51 vols., was begun in 1824). The author was enabled, by the sale of this edition of his works, to buy an estate, called Osmannstädt, near Weimar, where he intended to spend the evening of his life. As his manner of living was simple, his moderate income was adequate to his wants, though his wife bore him fourteen children within twenty years. From 1798 to 1803, he continually lived in Osmannstädt, and occupied himself with literary labors, among which his Attic Museum should be mentioned. Aristippus and some of his Contemporaries also belongs to this period. In 1803, he sold his estate, from views of economy, and lived again in Weimar, where he now found Schiller, with whom he soon became intimate. After the death of the duchess Amalia, of Schiller, and many of his other friends, he sought to divert his melancholy by literary labors. We owe to this circumstance his translation of Cicero's Letters. The emperor Alexander gave him the order of St. Anne, and Napoleon that of the legion of honor. He was elected a member of the French institute, and died Jan. 20, 1813: his wife had died in 1801. The remains of both rest in the same tomb, which bears an inscription, composed by Wieland himself, commemorative of the love which had united them throughout life. Wieland became, at a late period of his life, a free-mason.

WIELICZKA; a town of Austrian Poland, in the kingdom of Galicia, seven miles south-east of Cracow, remarkable for its salt mines, which extend, not only under the town, but to a considerable distance on each side. The mines were worked as early as the middle of the thirteenth century; but, notwithstanding the quantity of salt which has been taken out, their treasures appear as inexhaustible as ever. They are situated at the outskirts of the Carpathian mountains, and descend to the depth of about fifteen hundred feet. The miners commonly go down on ladders; but the visitor may have the accommodation of regular stairs cut in the salt. At a depth of three hundred feet on the first floor, is St. Anthony's chapel, hewn out of the salt rock. In the upper galleries, where the mining was carried on irregularly, the roofs of the great caverns excavated have often fallen in, and it has become necessary to prop them up with wood; but in the lower galleries, where the operations have been subsequently carried on, and conducted with more regularity, large masses are left standing, which serve as pillars to the roof. The workmen are divided into three bands, which relieve each other alternately, each spending eight hours in work, and passing the rest of the time above ground with their families, which do not, as has been asserted, reside in the mines. The salt is cut out in long narrow blocks, and then, after being broken into smaller pieces, is packed up in barrels. There has been much exaggeration in regard to these mines, some travellers speaking of them as a subterraneous city with extensive streets, buildings, &c. One of the caverns, called the *great hall*, contains lustres hanging from the roof, and all the curiosities, crystals, petrifactions, &c., which have been found here. Seven hundred thousand quintals are annually raised, which, with two hundred thousand quintals raised at Bochnia, in the vicinity, yield a net amount of $800,000 annually. There are three qualities of salt obtained here. The worst sort is mixed with clay, and has a greenish appearance. The best appears in the form of cubic crystals, and is of a dark-grayish color, with a mixture of yellow. The salt-works formerly belonged to Poland, but have been the property of Austria, with a slight intermission, since 1772. They are supposed to be connected with the salt formation in Walachia, and thus to have an extent of upwards of 500 miles.—See Fichtel's *History of the Salt Mines in Transylvania* (in German, Nuremberg, 1780).

Wier's Cave. (See *Cave.*)

Wife. (See *Husband and Wife.*)

Wig is derived from the Latin *pilus* in this way:—*pilus*—Spanish *pelo*, whence *peluca*; French *perruque*; Dutch *peruik*; English *perwick*, *perwig*, *periwig*, shortened to *wig*. The use of false hair is traced back to the ancients. Xenophon says that Astyages wore a peruke about the fiftieth Olympiad, in which the hair was thick. They were afterwards worn by several of the Roman emperors. Lampridius relates of the wig of Commodus, that it was tinged with fragrant colors and powdered with gold-dust. After this period, we find no trace of wigs in history till the sixteenth century, when John, duke of Saxony, wrote to Arnold von Falkenstein, in Coburg, to order a handsome wig to be made in Nuremberg, "but privately, so that it may not be known to be for us, and of a flaxen color and curled make, of such a fashion, moreover, that it may be conveniently set upon the head." France afterwards became the peculiar country of wigs, whence they spread to all parts of Europe. Henry III (1575—89), having lost his hair by disease, caused by his debaucheries, covered his cap, such as was then in general use, with false hair. Under Louis XIII (1610—43), they came into common use. Even those who had no necessity for them, wore them because it was fashionable. Their form was very various. Some account of them may be found in a learned work by Nicolai, On the Use of False Hair (*Ueber den Gebrauch der falschen Haare*). Modern refinement has abolished this unnatural ornament; and, where wigs are needed, care is taken to make them, as far as possible, resemble nature. Wigs, with all their appurtenances, form a very curious item in the history of fashion; and the tenacity with which men have clung, and even now cling, to this article, which, like the cravat, is neither comfortable, handsome, nor healthy, shows, in a striking manner, the force of habit. We allude, of course, only to those wigs which are worn merely for fashion's sake, and not to those imitations of the natural hair which serve as coverings for baldness. A history of wigs, with illustrative plates, would be not an uninteresting work. When people began to appear without wigs, it was considered the height of vulgarity. The same was the case when people left off hair-powder and queues. The French revolution gave the death-blow to the general use of wigs. The disuse of them in the case of particular classes was considered a flagrant breach of decorum. A clergyman in Prussia, named Schultze, was involved in serious difficulties, because he appeared with a queue and without a wig in the pulpit, and the government was obliged to protect him. Of Jovellanos (q. v.) it is mentioned that he was the first Spanish judge who appeared without a wig; and the influence of the primo-minister, count Aranda, was required to support him in this innovation, which, strange to say, has even yet not extended to the English judges, who, as well as the counsellors, still appear in wigs; and what wigs! Whoever has seen them will not be likely to forget them. It was considered a bold step in lord Brougham when he dared to appear with a smaller wig than his predecessors in the office of chancellor. A late English traveller (captain Basil Hall), among other melancholy instances of the universal ascendency of the democratic principle in the U. States, deplores the want of wigs on the heads of the judges. How must he have felt when the bishop of Carlisle appeared, in 1830, in the house of lords without a wig, and the bishop of Oxford followed his example!

Wigan; a borough and market-town of England, county of Lancaster, near the small river Douglas. It has manufactures of coarse home-made linens, checks, calicoes, fustians, and other cotton goods; also large brass and pewter works. It returns two members to parliament. Population in 1821, 17,716; in 1831, 20,774. Thirty-nine miles south of Lancaster.

Wight, Isle of; an island of England, on the coast of Hampshire, from which it is separated by a channel varying in breadth from two to seven miles. From the eastern to the western angle it measures nearly twenty-three miles, and from the northern to the southern about thirteen. Its superficies includes 105,000 acres, of which about 75,000 are arable, and 20,000 are in pasturage. Through the middle extends a range of high hills, affording commanding views over every part of the isle, with the ocean on the south side, and on the north the beautiful coast of Hampshire. The land around the coast is in some parts very high, and frequented by immense numbers of marine birds, as puffins, razor-bills, will-cocks, gulls, cormorants, Cornish-choughs, daws, starlings and wild pigeons, some of which come, at stated times, to lay their eggs and breed, while others remain there all the year. The higher parts of the isle are composed of calcareous matter, of a chalky nature, incumbent on schistus. The limestone is burnt for manure. Native alum is found in large quantities in Alum bay: pipe-clay is likewise very plentiful in different parts of the isle; and chalybeate springs have been found in different parts of the island. The trade of the Isle of Wight is flourishing; the harbor of Cowes is particularly convenient for shipping and unshipping merchandise. (See *Cowes*.) The island contains three boroughs, Newport, Newtown and Yarmouth, returning each two members to parliament previous to the passage of the reform act in 1832. By that act, Newtown, which is entirely without inhabitants, and Yarmouth, which has but 586, were disfranchised. Newport (4081 inhabitants) continues to return two members, and the isle now returns one, as a county member.

Wigwam; a name given by the English to the huts or cabins of the North American Indians. This word, as we learn from Eliot's Indian Grammar (printed in 1666), is a corruption of the Indian compound *weekuwom-ut*, which signifies *in his house*. The corresponding word in the Delaware language is written by the German missionary Mr. Zeisberger, *wikwam*.

Wilberforce, William, a distinguished philanthropist, whose exertions to procure the abolition of the slave-trade give him a high rank among the benefactors of the human race, was born at Hull, in Yorkshire, in the year 1759, of which place his grandfather had been twice mayor. His father died when he was young, and, in 1774, he was sent to St. John's college, Cambridge, where he formed an intimacy with Mr. Pitt. Mr. Wilberforce came into a good fortune, and was elected member of parliament for Hull in 1780. During this parliament, he did not take any very active part in politics. He was also elected in 1784, and, owing to the partiality of the people for Mr. Pitt's friends, was also chosen for the county of York: he therefore made his election for that county. In 1787, he brought forward a motion for the abolition of the slave-trade, and presented a great number of petitions in favor of that measure. The minister spoke in favor of the abolition, but suffered the motion to be lost. The next year, Mr. Wilberforce being ill, Mr. Pitt brought on the motion, and the question was carried without a division; but it went no further. It was a singular circumstance, that Mr. Pitt, whose power was then at its zenith, could carry every measure but this. Mr. Wilberforce had much to contend with before he completed his object; and all he could do was to procure some regulations favorable to the slaves during their passage. The condition of the slaves in the West Indies was, however, greatly improved. While Mr. Pitt was minister, every trick was tried to avoid the question, till Mr. Fox and his friends succeeded to power, when, to their honor, he and his friends carried the measure. The influence of Mr. Wilberforce in the house of commons was extraordinary; and, at one time, during the French war, an appearance of defection on the part of Wilberforce and his friends induced Pitt to open a treaty with France. Mr. Wilberforce has published a Practical View of the prevailing Religious Systems of Professed Christians in the higher and middle Classes of the Country contrasted with real Christianity (1797); an Apology for the Christian Sabbath (1799); a Letter on the Abolition of the Slave-Trade (1807); and Substance of his Speeches on the Bill for promoting the Religious Instruction of the Natives of British India (1813).

Wild Rice (*zizania aquatica*); a large kind of grass, which grows in shallow water or miry situations, in many parts of North America. The stem is seven or eight feet high; the leaves broad and scattering; and the flowers disposed in a large terminal panicle, spreading at the base and spiked at the summit. The female flowers are awned, upright, and form the terminating spike, while the male are nodding, and placed at the extremities of the spreading branchlets; the stamens are six in number; the seeds are about half an inch long, slender, farinaceous, and afford a very good meal, which is much used by the Indians in those districts where the plant abounds. The seeds drop off with the slightest blow; and the Indians collect them by bending the plants, and beating them over their canoes. The wild rice grows in the Northern and Middle States and in Canada. It is extremely abundant along the muddy shores of the Delaware, and forms the chief attraction for the immense flocks of reed-birds and black-birds which annually resort thither in the autumn. Owing to the different features of the Chesapeake and Hudson, it is rare on their shores, and on most of their branches. It is most abundant in the north-west, being found as far as latitude 50°, on lake Winnipeg; but it does not exist on the Missouri, or west of the St. Peters, a branch of the Upper Mississippi. This plant may, perhaps, at some future day, exert considerable influence on the destiny of the human race, and render populous many districts in the extreme north which are now considered uninhabitable. Another and larger species of *zizania* is found in the more southern parts of the United States, which is distinguished by having the male and female flowers intermixed.

Wilhelmshöhe (*William's Height*), formerly *Weissenstein*, and during the brief existence of the kingdom of Westphalia, called *Napoleon's Höhe*, is a castle belonging to the elector of Hesse-Cassel, a league distant from Cassel, the usual summer residence of the monarch. Art and nature have vied in adorning it. An alley of linden-trees leads from Cassel to the foot of the elevation on which the palace stands. The most remarkable objects in this place are, 1. The palace of the elector. 2. The great fountain, a column of water which may be made to rise 190 feet high. Its diameter is nine inches. 3. The great cascade. The water falls 104 feet, in a stream eighteen feet wide and one foot in thickness. 4. The Carlsberg (Charles mountain), with its cascades, erected, in 1701, by the Italian architect Giov. Franc. Guernieri. Here is a grotto, in front of which is a basin 220 feet in diameter. The water falls over the grotto into the basin, and thence in a triple cascade, 900 Rhenish feet long and 40 feet wide. At intervals of 150 feet are basins. On both sides of the cascade, 842 steps lead up to the palace, called, on account of its form, the *octagon*. At the foot of this building is a basin 150 feet in diameter, in which a rock, lying as if it had fallen from above, covers the body of the giant Enceladus. His mouth is seven feet wide, and sends forth a mass of water 55 feet high. In the back-ground of the basin is a grotto, on one side of which is a centaur, on the other a faun, both of which blow through copper horns as long as the water plays. There is also another basin, provided with a grotto and a statue of Polyphemus, which plays when the water flows. Before this grotto is the artichoke basin, owing its name to an enormous artichoke of stone, from the leaves of which twelve fountains spring, of which that in the centre rises forty feet. The giant castle (as the palace is called) is remarkable in various respects.

It has 192 Tuscan columns, each 48 feet high, which support the third story. On a platform extending over the whole building, stands a pyramid 96 feet high, at the summit of which, on a pedestal eleven feet high, stands the colossal statue of the Farnese Hercules, called, by the people of the neighborhood, the *great Christopher*. It is of copper, 31 feet high. In his club there is sufficient room for twelve men. There is a door in it, from which a splendid view is presented of the surrounding country. Among the other curiosities are a remarkable bridge, a romantic cascade, a Chinese village, &c.

Wilken, Frederic, doctor of theology, royal Prussian historiographer, first librarian and professor in the university of Berlin, &c., a distinguished historian, was born in 1771, in Ratzeburg. In 1795, he went to the university of Göttingen, where, at first, he studied theology, but soon devoted himself to history, philology, and the Oriental languages. In 1798, he received the prize of the philosophical faculty at Göttingen, for a critical work on the statements of sultan Abulfeda respecting the crusades, which he subsequently extended to a full history of these remarkable events. In 1805, he was made professor of history in the university of Heidelberg, and, in 1808, superintendent of the library. In 1815, when the various countries reclaimed from France the treasures which had been carried to Paris, professor Wilken conceived the bold idea of demanding the library of Heidelberg, seized, 200 years ago, by Bavaria, and presented to pope Urban VIII. (See *Heidelberg*, *Library of*.) The Prussian and Austrian ministers supported Wilken; and, as the Romans believed that Heidelberg belonged to Prussia, the pope gave up the library, actually making a present of it, however, to the king of Prussia. The famous sculptor Canova had come to Paris, as commissioner on the part of the pope, without any means of ascertaining precisely what he ought to reclaim; and Wilken aided him greatly by presenting him a catalogue of all the manuscripts and works of art carried from the Vatican to Paris, printed at Leipsic in 1805. Canova, in return, aided Wilken's demand by his own intercession with cardinal Consalvi. Thus 38 Greek, Latin and French, and 853 German manuscripts were given back to Heidelberg. Wilken went, in 1816, to Rome. In 1813, he was made a member of the French institute. Most of his writings relate to the Persian language and the history of the East; but his chief work is the History of the Crusades, from Oriental and Western Sources (6 vols., Leipsic, 1807—1830). He has also written a history of the old Heidelberg library, &c. (1817).

Wilkes, John, a political character of temporary celebrity, born in London, in 1727, was the second son of an opulent distiller. After a preliminary education, under a dissenting minister at Aylesbury, he was sent to finish his studies at the university of Leyden. He returned to England in 1749, with a considerable portion of classical and general knowledge, and soon after married a lady of large fortune. One daughter was the fruit of this union, which did not prevent him from living a licentious life; and he soon after finally separated from his wife. In 1757, he obtained a seat in parliament for the borough of Aylesbury, and involved his affairs by the expenses of the election. He went into parliament under the auspices of earl Temple, through whose interest he was also appointed lieutenant-colonel of the Bucks militia. His early career was by no means conspicuous; but on the secession of earl Temple and Mr. Pitt from the ministry, in 1762, he attained considerable reputation by some pamphlets, attacking the administration, and more especially the earl of Bute. He extended his hostility not only to that nobleman, but to his country, and, by his paper entitled the North Briton, rendered antipathy to Scotland prevalent in England. These papers hastened the resignation of lord Bute, which took place in April, 1763. In the same month appeared the famous No. 45 of the North Briton, which commented on the king's speech in such caustic terms, that a prosecution was determined upon. The home secretary, in consequence, issued a general warrant, or one in which particular names are not specified, ordering the apprehension of the authors, printers and publishers of the paper in question. On this warrant Wilkes, among others, was apprehended; but he asserted the illegality of the warrant, and, refusing to answer interrogatories, was committed to the Tower. Some days after, he was brought, by writ of habeas corpus, before chief justice Pratt, of the common pleas, who declared the judgment of that court that general warrants were illegal, and he was consequently discharged, amidst the general rejoicings of the populace. Aided by lord Temple, he brought actions against the secretary of state, under secretaries, messengers, and every person employed in the transaction, in which the prosecutors obtained damages, which were paid by the crown. Not content with this escape, he reprinted the obnoxious North Briton, which produced a regular prosecution to conviction; and, in the mean time, having fought a duel with a Mr. Martin, in which he was dangerously wounded, he withdrew to France. The result of his non-appearance to meet the prosecution was expulsion from the house of commons. A second charge was also brought against him for printing an obscene poem, entitled an Essay on Women, and he was found guilty of blasphemy as well as libel, added to which, his continued absence produced outlawry, and thus the ministerial triumph was complete. He in vain made attempts to procure the reversal of his outlawry; but, trusting to his popularity, he ventured to return, on a change of ministry, and to deliver himself into custody. Notwithstanding his imprisonment, he was elected to represent the county of Middlesex, by a vast majority; and, soon after, his outlawry was discussed at various hearings, and solemnly reversed; but this did not procure his liberty; and he was condemned to an imprisonment of twenty-two months, and a fine of £1000. In 1769, in consequence of a pamphlet written by him, in censure of a letter from the secretary of state to a magistrate, advising the employment of the military in repression of the riots which were the result of Mr. Wilkes's confinement, he was again expelled the house. This measure being followed by his immediate reëlection, he was declared incapable of becoming a member of the existing parliament, and colonel Luttrell set up against him, who was declared the sitting member for Middlesex at the next election, although the votes for him did not amount to a fourth part of those for Wilkes—a decision which produced a great sensation, and excited disgust even among those who disliked the person thus opposed. In return for the loss of his seat, he was elected alderman of the ward of Farringdon Without, and in this magistracy displayed his usual spirit against illegal authority. The house of commons having summoned some printers in the city before them, for publishing their speeches, they neglected to attend, when a royal proclamation was obtained for apprehending them; and when, on its authority, one of the printers was carried before alderman Wilkes, he, who deemed the apprehension a breach of the privileges of the city, discharged the printer, and ordered the captor to give bail. The lord-mayor Oliver, and alderman Crosby, acted in the same way in regard to two other printers, for which, being members of the house of commons, they were committed to the Tower, while Wilkes, being summoned to the bar of the house of commons, instead of obeying, wrote to the speaker and claimed his seat. The house was now sensible of the difficulty in which it had involved itself, and found no better expedient to save its credit than an adjournment beyond the day on which he was ordered to attend. In 1772, he was chosen sheriff, and, in 1774, elected mayor; and he knew so well both how to acquire and to retain popularity, that, on the dissolution of parliament, in the same year, he was once more chosen member for Middlesex. In parliament he was a strenuous opposer of the measures which led to the American war, but did not render himself very conspicuous as a speaker. In 1779, he was chosen, by a great majority, chamberlain of London, which lucrative office, so necessary to his broken fortune, he held for the remainder of his life. In 1782, upon the dismissal of the North administration, the obnoxious resolutions against him were, on his own motion, expunged from the journals of the house; from which time, although, in 1784, once more reëlected member for Middlesex, he deemed himself "a fire burnt out." He died December 26, 1797, aged seventy; for some years previously to which event he was comparatively forgotten. Wilkes, as a writer and speaker, did not reach beyond mediocrity. His private character was very licentious, but he possessed elegant manners, fine taste, ready wit, and pleasing conversation. His Letters and Speeches were published by himself in 1787; and much light is thrown upon his conduct by the Letters from the Year 1774 to the Year 1796, to his Daughter (1804, 4 vols., 12mo.). His correspondence, in 5 vols., was also published, with a Memoir by Almon, in 1805 (5 vols.).

Wilkie, William, a Scottish poet, was born in the county of West Lothian. His father, a small farmer, contrived to give him a liberal education, and, at the age of thirteen, he was sent to the university of Edinburgh. Before he completed his academical course, the death of his father obliged him to pay attention to the farm, which was the only inheritance of himself and three sisters. He still, however, prosecuted his studies, and was admitted a preacher in the church of Scotland. In 1753, he published his Epigoniad, an epic, which met with much success in Scotland; and, in 1759, he was chosen professor of natural philosophy in the university of St. Andrews. In 1768, he sent out a volume of Fables, in imitation of those of Gay. He died in 1772.

Wilkie, David, a distinguished painter, a native of Scotland, was born in 1785, at Cults, in the county of Fife, of which place his father was pastor for upwards of thirty years. Having, when a youth, shown much talent for drawing, he was sent, at the age of fifteen, to the academy at Edinburgh, under the care of Mr. Graham, and there continued his studies for five years. In 1805, he went to London, and, having given some specimens of his abilities, obtained the patronage of the late lord Mulgrave and sir George Bennet, by each of whom he was employed. The former possessed his picture of the Rent-day, and the sketches of many of his celebrated works; the latter his Blind Fiddler. In 1806, he exhibited, for the first time, at the royal academy; in 1810, was elected an associate; and, in 1812, a royal academician. Mr. Wilkie is highly successful in painting scenes of domestic life, much in the manner of Hogarth; and, like Hogarth, he seems never to omit the most trifling circumstance which can tend to exhibit the spirit of the scene which he means to represent. He has more recently attempted the loftier historical style of composition, as in his John Knox, &c.

Wilkins, John, bishop of Chester, a learned prelate of the seventeenth century, was born in 1614, and, after receiving the rudiments of a classical education at a private seminary in Oxford, was matriculated at New-inn hall in 1627, which he afterwards left for Magdalen hall. Having taken holy orders, he obtained the appointment of domestic chaplain to the count palatine of the Rhine. On the breaking out of the civil wars, his opinions and discourses manifested his adherence to the popular party, and his conduct was rewarded by the headship of Wadham college, Oxford, for which celibacy was a qualification. In 1656, he married the sister of Oliver Cromwell; and the protector gave his brother-in-law a dispensation, which prevented his losing his preferment. In 1659, he received the headship of Trinity college, Cambridge; but, on the restoration of monarchy in the following year, he was ejected. But, in 1668, he was elevated to the episcopal bench, through the interest of Buckingham. As a mathematician and a philosopher, Wilkins exhibited considerable acuteness and ingenuity. His opinions of the practicability of a passage to the moon, which he conceived to be inhabited, are expressed in his work entitled the Discovery of a New World, or a Discourse on the World in the Moon (8vo., 1638). In 1640, he published a second treatise, the object of which is to prove that the earth is a new planet. His other writings are, Mercury, or the Secret and Swift Messenger (1641); Mathematical Magic (1648); Ecclesiastes, or the Gift of Preaching; On the Principles and Duties of Natural Religion; a Discourse concerning Providence; an Essay towards a Real Character and Philosophical Language (folio), &c. He was one of the literary personages who received a charter of incorporation from Charles II, under the name of the *royal society*. Bishop Wilkins died in 1672.

Will. The will of man is the power which gives direction to his faculties. What we call the *rational will*, is the volition operated on by external influences, directing it to the attainment of supposed good, or the avoidance of supposed evil. This will even brutes have, as they are capable of seeking the agreeable and shunning the disagreeable; but of will in a higher sense, as influenced by the moral principle to seek what is good in itself, without reference to present pleasure or pain, brutes are not capable. Rational will presupposes liberty of choice. Moral liberty consists in the power of determining according to reason; but the will of man is never governed by a simple reference to the highest good: such purity of purpose can be ascribed only to the Deity. The freedom of the will is essential to moral action, and is the great distinction of man from the brute; yet it is not easy to reconcile it metaphysically with the influence of external things upon the mind, and with the foreknowledge of God. To determine how far the human will is free, and how far it is subjected to uncontrollable influences, has always been the great aim of the metaphysician and the moralist. But to give a proper view of a subject so profound, so unlimited, and so variously treated, would far exceed the limits which the character of this work prescribes.

Will, or Testament (*ultima voluntas*, last will). In the abstract, there is a contradiction in the idea of a will, because, whilst all the authority and obligation of a will is founded on the idea of a society, to which he who makes the will belongs, the person who claims the assistance of the society, has, in fact, ceased to belong to it, and all mutual obligations between him and the society have been dissolved by his death. It cannot be denied that there is something unphilosophical in the idea that a being, no longer a member of a society, shall nevertheless influence it by his previous will. But, on the other hand, the reasons in support of the right of making wills are so numerous, that it is sanctioned by the laws of all civilized nations, and even receives additional security with the progress of civilization. Our limits do not permit us to go into the discussion of these reasons. We will only remark that it is generally admitted that the disposition to acquire property, and the secure possession of it when acquired, are the foundation and safeguards of civilization; and this disposition to acquire, and the feeling of complete ownership, are greatly promoted by the liberty to dispose freely of acquired property, even after death. The idea of a will does not exist among nations in their earliest stages. They admit the right of making testaments with reluctance, and under great restrictions, and render the execution of the right difficult, by surrounding it with formalities, which indicate that such a disposition takes place only with the consent of the society, and is valid only under its authority. In Rome, this right was extended, by the twelve tables, to every father of a family (*pater familias uti legassit super pecunia tutelave rei suæ, ita jus esto*); but the earliest form of making wills was to declare one's own will in the assemblies of the people (*calatis comitiis*), or in the presence of the soldiers, who were collected for a military expedition (*in procinctu*). Among the ancient Germans, the right of disposing by will was granted only to free persons sufficiently vigorous to appear "without support, without a staff" (*ungehabt und ungestabt*), and the right could be exercised only in the assembly of the people. Restrictions additional to those which proceed from a general incapacity to perform a valid act, have always attended the right of making a will: thus, in Rome, foreigners were not allowed to bequeath their property (this restriction was preserved in the *droit d'aubaine* (q. v.) in France until the revolution): in Germany, none but free persons had this right, and even they could not dispose of inherited estates. Such limitations have been gradually abolished in modern times: still, however, in favor of children, parents, grand-parents, &c., many are yet continued in various parts of Europe; for instance, testators are not allowed to bequeath the whole of their property away from their natural heirs. Persons of full age, sound mind, reputable deportment, and capable of making known their intentions, are generally allowed to make a will. Of course, the testator cannot dispose of any thing of which he has not the full property, such as fiefs, entailed estates, &c. In the Roman law, the doctrine of wills and testaments was intimately connected with the earliest foundations of their national law, with their religion by the *sacra privata*, with the ancient rights of their *gentes*, with their views of the complete property of a citizen (*dominium ex jure Quiritium*) and of mere possession (*quod in bonis est*), with their system of slavery, and their public law. Hence this doctrine is so interwoven with their whole law, and is marked by so many peculiarities; for instance, that a testament must always embrace the whole property left (*nemo pro parte testatus, pro parte intestatus decedere potest*), which has been abolished in the modern codes (Prussian Code i, xii, 256; Austrian Civil Code i, 556). The Roman law has, notwithstanding all these peculiarities, become general in modern Europe, and has found its way even to England (as testaments there come within the jurisdiction of the ecclesiastical courts), where it still exists with some modifications. We shall speak below of the laws respecting wills in England and the U. States. In Germany, too, the Roman law is yet the law of the land, wherever it has not been expressly changed, and there it has retained the most of its peculiarities. In Germany, however, all foreigners are capable of bequeathing and inheriting, by a law made as early as the time of the emperor Frederic II. (See *Aubaine, Droit d'*.) This is not the place to treat a subject so extensive in all its details. We can only give the most important features. The form of testaments required by the Roman law still bears the stamp of its origin. The fundamental idea is that of a solemn and public transfer of the whole property, by which another person enters into all the transferable rights and obligations of the testator. This was to be done before seven witnesses, expressly summoned (Roman male citizens, against whom there was no legal objection), and the whole ceremony was to be performed without interruption. Five of these were proper witnesses: the sixth (*libripens*) originally carried a balance, to denote the weighing out of the estate to the heir, who was considered as a purchaser; the seventh (*antestatus*) is considered by Hugo as the foreman of the witnesses. In their presence the testator made known his will, either merely orally (*testamentum nuncupativum*), or by showing them a writing in his own hand, or at least signed by himself, declaring it to be his testament, which was then also to be signed and sealed by all the witnesses (*testamentum scriptum*). If the testator was a blind person, an eighth witness was necessary, and also if he could not write, but only in case he made a written instrument. The want of these external formalities made a will void (*injustum*), so that it lost its whole effect. The internal formalities included, in general, the institution of heirs, particularly if the testator had children or grandchildren, or, in failure of them, relations in the ascending line, in which case it was necessary for him to make them his heirs, or to disinherit them explicitly. The entire omission to name such relations in the will, made it void (*testamentum nullum*), and the subsequent birth of a legal heir was equivalent to a revocation of the will (*testamentum raptum*). A testament passing over heirs entitled by law to a share (and such heirs included, besides children and parents, also sisters and brothers) was called inofficious (*inofficiosum*), and their legal portion might be claimed by such heirs. When the testator lost the right of bequeathing, the testament became invalid (*irritum*), as well as when the appointed heir ceased to be such, for some reason, and no one was substituted in his place (*testamentum destitutum*). Even in earlier times, the external formalities were dispensed with in particular kinds of wills (*testamenta privilegiata*), particularly, 1. the testaments of soldiers, which were almost entirely relieved from them, as well as from the internal formalities; 2. testaments made in the country, which required but five witnesses; 3. testaments made in times of contagious and epidemic diseases, or during a dangerous sickness, in which case the interruption of the ceremony did not make the will invalid; 4. testaments of travellers: also when parents left their property to their children only, no other formality was necessary than that they should write the will themselves, and mention the names of the children, and the date of the instrument: these were private testaments. In the times of the emperors, in whom the whole authority of the state was concentrated, a testament required no external formality but that of being delivered in person to the monarch; in fact, it was sufficient to deliver it to the officers of justice, and have it entered in the public records. Modern legislation has changed much in these forms, though, generally speaking, they are yet required in most countries of Germany. In the middle ages, the ecclesiastical courts, almost every where, claimed the oversight of testaments, as, even now, testaments in England fall within the jurisdiction of these courts, because it was maintained that the future state of the soul of the testator was connected with the character of the testament, which therefore fell within the province of the church, and that every one was bound to make some bequest for pious purposes, for the salvation of his soul. The formalities connected with the making of testaments were lessened, and it was declared to be sufficient that they should be put in writing in presence of the parish priest and two witnesses; and legacies for the benefit of the church were relieved from all formalities. This rule of making a testament in the presence of the clergyman, is no longer the common law of Germany; but it has been retained as the local law of many places. The Roman regulations respecting judicial testaments have also been modified in Germany. In Saxony, a testament is judicial if it is drawn up in court by the judge and the clerk, or out of court by the judge, the clerk and an assessor (*Schöppe*), or is handed to them. The presence of the judge may be supplied by that of a second assessor. In other parts of Germany, a testament may be drawn up by a member of the town council and its clerk. But private testaments made according to the Roman form are also valid. In Prussia, judicial testaments are the only ones allowed. The testator either appears in court, and there deposits his will in writing, and, if he so pleases, sealed; or he declares his will orally, and it is taken down in writing; or he invites a deputation of the court to his house. In Austria, both judicial and extra-judicial testaments are valid. At the making of the former, at least two persons belonging to the court, and acting under oath, must be present; and, if the testator gives in his testament in writing, it must be signed by himself. A last will is also valid, *a.* if it is written entirely by the testator's own hand, and signed with his name; *b.* if it is written by another person, but signed by the testator, and acknowledged before three witnesses; or, *c.* if it is read before three witnesses; or, *d.* only orally declared. These last forms will probably be changed at some future period, as affording too much facility for forgery. In France, there are but two forms of testaments, the written testament, when the testator writes the will entirely himself, signs it, and affixes the date to it (*testament holographe*), and the public testament, when the testator declares his will orally, and signs the protocol before two notaries and two witnesses, or one notary and four witnesses. If the testator cannot write, this circumstance must be mentioned. The testator may also deposit with the notary a sealed instrument (*testament mystique*). In this case, six witnesses must be present at the declaration that the paper contains the will of the depositor. So great a variety of forms existing in various countries, it may become of great importance to know by what laws the validity of a will is to be judged. In general, the laws of the testator's native country must be followed; so that a Prussian or a Frenchman can make a testament in foreign countries only in the way prescribed by the laws of his own country. But, in respect to the form of public acknowledgment, the laws of the country must decide; for example, a Frenchman in foreign countries may resort to the courts instead of notaries; and, if a Prussian should make a will in France, he must apply to the notaries to give validity to the instrument. The testament, according to the Roman law, is always revocable; and no person can legally divest himself of this privilege of change. The Romans did not admit of a man's binding himself to leave his property to a particular person. In Germany, however, an irrevocable right of inheritance can be obtained by contract, and the obligation is often made mutual, as in matrimonial contracts. Except in such cases, the testator can always change his testament, by taking back the instrument deposited in court, cancelling a private testament, or making another. But on this point, also, laws differ. According to the common law of Germany, the taking back of the deposited will is not a revocation of it, unless the intention of the testator is clearly manifested; for example, by tearing off the seals. The same is the case in Saxony. But, in Prussia, the taking back of a testament, deposited in court, makes it void. A later testament has preference over an earlier one; but, if there are several testaments, and it cannot be ascertained which is the latest, both are valid; and, if the later testament was invalid from the beginning, the earlier one remains in force. No regularly-made testament can be annulled by a mere oral declaration; but the Roman law provides that, if a testament is ten years old (in which case it became void by the earlier law), it may be revoked by a declaration before three witnesses. Modern laws require for such oral annulment, unaccompanied by the act of erasure, tearing off seals, &c., the same formalities which were required to give validity to the instrument. In France, a will may be revoked by a written expression of the testator's purpose, and also by an oral declaration before one notary and two witnesses. Different from the testament in which the institution of an heir is required is the codicil, which may contain only legacies; hence it is customary to add to testaments the clause, that if, from any circumstance, they cannot take effect as testaments, they shall, nevertheless, be considered as codicils (*clausula codicillaria*). It is a much contested point, in the continental courts, what formalities a codicil must have; hence it is considered safest to accompany the making of a codicil with the same formalities which are required in the case of a will.—We shall now consider the laws of England and the U. States on the subject of wills. In respect to personal property, a will is also called a *testament;* and the disposition of the testator's real or personal estate, or both, is called a *last will and testament*. A *devise* is the disposition of real property in a will, and a *legacy* is the personal property disposed of to one or more persons by a testamentary provision. A *bequest* is a provision of a will disposing of real or personal estate. Among the Anglo-Saxons, the practice of devising lands prevailed to some extent (Spelman *On Feuds*, c. v; Wright's *Tenures*, p. 171); but, after the conquest, lands held by feudal tenure were not devisable, with the exception of burgage tenures. Lands held in gavelkind, however, as were, for the most part, those of the county of Kent, were devisable. After some changes in the laws, in this respect, in England, a statute was passed, in the beginning of the reign of Charles II, which gave a general power of devising whatever interest or estate the testator had in lands. In the U. States, from the first settlement of the country, lands and personal property have been generally subject to be disposed of by the will of the proprietor, with the exception of Louisiana, in which state a testator having one descendant can dispose of but two thirds of his estate by will, and of but one half if he leaves two, and of but one third if he leaves three or more. The laws of the other states contain some provisions in favor of the widow of the testator, particularly her right to dower, and also in favor of posthumous children. The power of the living proprietor to direct how his property shall be disposed of after his decease, especially his lands, is not among those absolute rights derived from the laws of nature, with which the laws of society cannot interfere without doing injustice, but is founded in expediency. Chancellor Kent justly remarks (*Com.* v. iv, lect. 68) that "the interests of society, in its career of wealth and civilization, seem to require that every man should have the free enjoyment and disposition of his property; for it furnishes one of the strongest motives to industry and economy." And he thinks the bonds of affection and family pride are a sufficient guaranty in favor of the claims of the relatives of the testator.—*Persons capable of making a Will.* The capacity to make a will, as to make a contract, or do any other act that may affect the person or rights of a party, is subject to legal regulation. To make a valid will, the testator must be of sound mind; and to make a devise of lands, he must be of the age of twenty-one years; but, by the English law, a boy of fourteen, and a girl of twelve, may bequeath chattels. By the revised statutes of New York (vol. ii, p. 60), the respective ages of capacity for this purpose are eighteen and sixteen. In the other U. States, the regulations in this respect vary. So, in England, and generally in the U. States, a married woman cannot dispose of either real or personal estates by will. But, in Louisiana, which adopts the French, and, therefore, in the main, the civil law in this respect, she can bequeath her own separate property. And, in the other states, property, whether real or personal, may be so placed in trust by marriage settlement, or otherwise, that it shall be subject to a testamentary disposition or appointment by a married woman. Devises to corporations, except for charitable uses, are not authorized by the English law. By the revised statutes of New York, a devise to a corporation not authorized by its charter to take by devise, is void. But chancellor Kent (*Com.*, v. iv, p. 508) is of opinion that a devise in trust for a charitable corporation would be good, notwithstanding this statute.—*Things devisable.* Though in England, and also in the U. States, with the exception of Louisiana, a person may dispose by will of his property, both real and personal, yet, in respect to real estate, the general doctrine has been, that a devise will operate only on the property of which the testator was possessed at the time of making the will, and of which he continued in possession till his death. This construction often defeats the intention of the testator, who, by devising all his real estate, generally intends to devise what he may own at the time of his decease. And the provision is often, professedly, a disposition of all the lands of which he may be in possession at the time of his decease. The revised statutes of New York have altered the law in this respect, and put a construction upon devises more conformable to the intention of testators, by providing that devises of all the testator's real estate, or terms in a will denoting an intention to dispose of all his real estate, shall operate upon all the lands of which he may be possessed at the time of his decease. A mere right of entry on lands is not generally devisable; but, in New York, Pennsylvania and Virginia, such a right is devisable, the rule, in those states, being that every interest or right in lands descendible to heirs may be devised.—*Execution of a Will.* It is a general rule that wills, to operate on lands, must be executed according to the laws of the place where the lands lie; but personal property passes by a will executed according to the laws of the place of residence of the testator, though the property be situated elsewhere. This distinction arises from the general rule, that the title to lands is to be governed by the laws of the country where it is situated, but that personal property is subject to the contracts and disposition made by the owner, in conformity to the laws of the place where they are made. It is a general rule, with some few exceptions, that a will must be in writing. The laws of New York require that it should be signed by the testator, at the conclusion of it. In England and in the U. States generally, it is only requisite that it should be signed. The construction put upon this rule in England has been that the testator's writing his name in the beginning of the will is a signing. This construction gave rise to the above provision of the New York statutes. These statutes have therefore defined, in one particular, what shall be a signing; but the law generally leaves this to construction, which seems to be more adviseable, since there is apparently no reason for defining what shall be a signing of a will, any more than what shall be a signing of any other instrument. In Vermont, a will is required to be sealed; but the law in the other states, and in England, requires merely that it should be in writing, and signed. Three witnesses are required in England, and in Vermont, New Hampshire, Maine, Massachusetts, Rhode Island, Connecticut, New Jersey, Maryland, South Carolina, Georgia, Alabama and Mississippi. In New York, Delaware, Virginia, Ohio, Illinois, Indiana, Missouri, Tennessee, North Carolina and Kentucky, only two; in Louisiana, from three to seven, according to the circumstances and kind of will. But some exceptions as to the witnessing are made in Pennsylvania, and in North Carolina and Tennessee. The regulations of two witnesses subscribing in the presence of the testator, and of each other, are not the same under all these jurisdictions. In the revised statutes of New York, the testator is required to sign the will, or acknowledge it to be his will in presence of each witness; but the requirement of the English law, that the witnesses must sign in each other's presence, is omitted. It has been held that the provision, that the testator must sign in presence of the witnesses, is satisfied if he is where he may be seen by them; but his being corporally present, though insensible, does not satisfy the requirement that they must attest in his presence.—*Nuncupative Wills.* At the common law, an oral will was valid in respect to chattels; but such wills are rendered void, or made subject to particular regulations, by the various statutes on the subject. By the statute of 29 Charles II, c. 3, a nuncupative will was not valid in respect to property exceeding thirty pounds, unless proved by three witnesses present at the time of making it, and especially requested to bear witness to it, or unless it was made in the testator's last sickness, and was reduced to writing within six months after his decease. This provision, or one very similar, is introduced into the statutes of many of the United States. But the restrictions on nuncupative wills confine them, in some of the United States, within still narrower limits. In New York, by the revised statutes, a nuncupative will is not valid unless made by a soldier in actual military service or a mariner at sea. In Massachusetts, such a will is not valid where the property exceeds fifty pounds, unless it is proved by at least three witnesses, nor unless it is made in the last sickness of the testator, and at his usual residence, or where he had been resident at least for the preceding ten days; excepting in the case of a person being unexpectedly taken sick when absent from home, and dying before his return to his home.—*Revocation.* A will may be revoked by an instrument of equal formality, or by cancelling. A subsequent will, accordingly, is a revocation of a prior one, if its provisions imply a substitution of the latter will for the former. But the more general rule is, that if a subsequent will is invalid, it will not be a revocation of a preceding one; and the general rule again is, that by a revocation or cancelling of a subsequent will, a preceding one is revived. But the New York revised statutes make a provision on this subject, which is more likely to meet the intention of the testator, namely, that the cancelling or revocation of a subsequent will does not revive a former one, unless the testator makes a declaration to that effect. So a will may be revoked by legal operation or inference; as in England, by subsequent marriage, and birth of a child, unless the wife and child or children be provided for by a marriage settlement. So the will of an unmarried woman is revoked by her marriage.—*Omission of Children or Heirs.* The law of Louisiana, as has been already noticed, prohibits the parent from disinheriting his children, excepting in certain specified cases; but in the other United States and in England, the parent may disinherit his children. The statutes of Maine, New Hampshire, Massachusetts and Rhode Island, provide that if a child be not named in the will of its parent, it inherits the same proportion of the estate as if the parent had died intestate; and so, in the same states, and in Vermont, Connecticut, New York, Pennsylvania, Delaware, Ohio, and Alabama, posthumous children, and in most of those states, also, children born after the making of the will, inherit as if no will had been made, provided, in either case, that no provision is made by the will for the subsequently born or posthumous children.—A *codicil* is a supplementary will, and requires to be made with similar formality.—*Construction.* It is a general rule, that wills are to be construed liberally, and, as far as is practicable, so as to fulfil the intention of the testator. In this respect, a greater liberality is adopted than in regard to deeds and most other written instruments. Thus the law does not require that a devise should be to the devisee *and his heirs*, in order to carry a fee; any other words, or any provisions of the will, showing an intention to give all the testator's title, being sufficient for that purpose. But it has been held that, in general, the devise of a piece of land gives the devisee only a life estate, unless it could be gathered from the will that a greater estate was intended to be devised. But the law, in this respect, is very much improved in the revised code of New York, which construes a devise of land to be a devise of all the testator's interest in it, unless a contrary intention appears in the will. This construction will, undoubtedly, more frequently correspond to the intention of the testator. In Massachusetts, it had previously been held that a devise of wild lands, which the testator possessed in fee, carried the fee; the presumption being entirely in favor of this construction, since the devise would, upon any other interpretation, be of no advantage to the devisee. The rule that the presumption shall be in favor of a life estate, if no other be expressed, has, undoubtedly, defeated the intention of testators in thousands of instances, indeed, in almost all cases of wills not drawn up by lawyers.

Willamov, John Theophilus, a German dithyrambic poet, was born in 1736, at Mohrungen, in Prussia, and, in 1767, became a school-master in St. Petersburg. He died in 1777. His poems relate to the separation of Sicily from Italy, the history of Arminius, and other elevated subjects. He also wrote fables in dialogue. The most complete edition of his poems was published at Vienna (1793).

Willdenow, Charles Louis, a celebrated botanist, born at Berlin, in 1765, was the son of an apothecary, and, after studying pharmacy under his father, was sent to the university of Halle, and then to Langensalza, where Wiegleb had a laboratory of pharmaceutical chemistry. Willdenow then returned to Berlin, where, in 1798, he received the chair of natural history at the royal college of medicine and surgery. In 1801, he was appointed professor of botany to the academy of Berlin, and, at length, director of the botanic garden at Berlin, which received great additions and improvements under his management. He formed a zoölogical cabinet, which he presented to the museum of Berlin. In 1804, he travelled through Austria and Upper Italy, and, seven years after, was invited to Paris by Humboldt, to classify and describe the multitude of new plants brought by that traveller from America. Willdenow died not long after his return to Berlin, July 10, 1812. He was an associate of twenty-four learned societies; and the king bestowed on him the order of the black eagle. Among his principal works are, *Prodromus Floræ Berolinensis* (1787); *Historia Amaranthorum* (Zürich, 1790, folio); *Elémens de Botanique* (1792), which has been translated into several languages; *Arboriculture Berlinoise spontanée* (1796); *Species Plantarum exhibentes Plantas ritè cognitas ad Genera relatas cum Differentiis specificis, Nominibus trivialibus, synonymis, selectis Locis natalibus, secundum Systema sexuale digestas* (Berlin, 1797—1810, 5 vols., in nine parts); *Guide pour étudier soi-même la Botanique* (1804); and *Hortus Berolinensis*, of which only the first volume has been published. Willdenow's great work, the *Species Plantarum*, was left incomplete, as he did not live to finish the history of the cryptogamic plants. A continuation has been promised by professor Link, of Berlin.

Wille, John George, a distinguished engraver, was born in 1715, near Giessen, in Hesse-Darmstadt. He learned the trade of a gunsmith, and afterwards became a watch-maker. He subsequently went to Paris, and there became an engraver. His portrait of marshal Belleisle became the foundation of his fortune. In the revolution, he lost his property, amounting to 800,000 francs, and would have lost his life had not his son happened to be general of the national guard of Paris. Napoleon made him a member of the legion of honor, and the institute elected him into their body. His portraits of the minister Florentin and of Bossuet are particularly valued. He subsequently engraved historical and similar pictures; also many sketches of his son *Peter Alexander Wille*, born in Paris, in 1748. He died in 1808.

William I, surnamed the *Conqueror;* king of England and duke of Normandy. He was born in 1024, and was the natural son of Robert, duke of Normandy, by Arlotta, the daughter of a tanner of Falaise. His father, having no legitimate son, on his departure on a pilgrimage to Jerusalem, caused the states of the duchy to swear allegiance to him as his heir. Robert died in 1035, on his return from Palestine; and the guardian of the young duke could not prevent the king of France from reducing the duchy to a very low condition. When William assumed the reins himself, his vigor and ability soon repelled these aggressions, and reduced both the French king and his own rebellious barons to the necessity of peace and submission. Edward the Confessor, at this time king of England, being closely connected with the Norman family, was instigated by the archbishop of Canterbury, a Norman, to allow William to be given to understand that the king designed him for his successor. The irresolute character of Edward, however, induced him to keep the secret in his own breast, which enabled Harold to ascend the throne on his death, in 1066, without opposition. Harold had previously been carried a captive into Normandy, where he was treated with great distinction by William, who informed him of the intentions of the Confessor, and took from him an oath to do his utmost to carry them into effect. His occupation of the throne led to immediate war, and the Norman invasion followed, which was rendered successful by the battle of Hastings, fought on the fourth of October, 1066, terminating in the defeat and death of Harold and two of his brothers. On the Christmas-day of the same year, William was crowned, after a sort of tumultuary election on the part of the English nobles, and took the customary coronation oath. His first measures were mild: he sought to ingratiate himself with his new subjects, preserved his army in strict discipline, confirmed the liberties of London and other cities, and administered justice impartially. On his return to Normandy, however, the English, being treated by the Norman leaders like a conquered people, broke out into revolt, and a conspiracy was planned for the massacre of all the Normans in the country. On this intelligence, William returned, and began with a show of justice, by repressing the encroachment of his followers; but, reviving the tax of Danegelt, which had been abolished by Edward the Confessor, the discontents were renewed. These he repressed with his usual vigor, and a temporary calm succeeded. The resistance of two powerful Saxon nobles, Edwin and Morcar, who had formed an alliance with the kings of Scotland and Denmark, and with the prince of North Wales, soon after drew William to the north, where he obliged Malcolm, king of Scotland, to do homage for Cumberland. From this time, he treated the English like a conquered people, multiplied confiscations in every quarter, and forced the native nobility to desert the country in great numbers. In 1069, another formidable insurrection broke out in the north, and, at the same time, the English resumed arms in the eastern and southern counties. William first opposed the storm in the north, and executed such merciless vengeance in his progress, that the whole country between York and Durham was turned into a desert; and above 100,000 of both sexes, and all ages, are said to have perished. There being now scarcely a landed proprietor who had not incurred the forfeiture of rebellion, he put into execution his plan of introducing a total alteration of the state of English law and property, by dividing all the lands into baronies, and adopting the feudal constitution of Normandy in regard to tenure and services. He also reduced the ecclesiastical property to a similar system, and, in order to prevent resistance from the clergy, expelled all the English church dignitaries, and placed Normans or other foreigners in their stead. Still further to subjugate the minds of the English, he sought to abolish even their language, causing the French to be spoken at court and used in courts of justice and in law proceedings, and ordering it to form a leading part of instruction in all the schools throughout the realm. In 1071, the earls Edwin and Morcar produced a new insurrection in the north, which terminated in the death of the former, and capture of the latter; and the Scottish king having again aided them, William marched an army into Scotland, which soon led to a peace; on which occasion, he allowed the return of the weak but rightful Saxon heir, Edgar Atheling, who had taken refuge in Scotland, and promised him an honorable establishment. In 1073, he returned to Normandy, whence he was recalled by a revolt among his Norman barons, which was, however, quelled by the regent Odo, his half brother. In 1076, he received a letter from pope Gregory VII, requiring him to do homage for his kingdom, and to pay the accustomed tribute from England to the holy see. William denied the homage; nor would he allow the English prelates to attend a general council summoned by Gregory, but consented to the levy of Peter's pence. About the year 1081, he instituted that general survey of the landed property of the kingdom, the record of which still exists under the title of *Domesday Book*, being a minute return of the estates in the different counties their extent, proprietors, tenure, condition and value. The manner in whic he laid waste the New Forest in Hamp shire, where he demolished villages, churches, and convents, and expelled the inhabitants for thirty miles round, merely to form a forest for hunting, exhibits his cruelty and love of sporting, which he further protected by a most severe code of game laws. In 1087, he went to war with France, whose king had encouraged a rebellion of Norman nobles. He entered the French territory, and committed great ravages, but, by the starting of his horse, received an injury which hastened his death, at the abbey of St. Gervais, near Rouen (1087), in the sixty-third year of his age. He left three sons—Robert, to whom he bequeathed Normandy; William, who inherited England; and Henry, who received nothing but his mother's property. He also left five daughters. William the Conqueror was the most powerful sovereign of his time. He possessed superior talents, both political and martial, and employed them with remarkable vigor and industry. His passions were, however, strong; his ambition severe and merciless; and his love of sway often led him to disregard all restraints of justice and humanity.—See Thierry's *Histoire de la Conquête de l'Angleterre par les Normands* (Paris, 1825, 3 vols.).

William II, surnamed *Rufus*, from his red hair, second son of the preceding, was born in 1060. Being nominated king of England by his father, on the death of the latter he hastened over from Normandy, took possession of the royal treasury at Winchester, and was crowned at Westminster in September, 1087. The division of England and Normandy did not, however, please the great barons, who possessed territories in both; and a conspiracy was formed for effecting the deposition of William in favor of his brother Robert. As the conspirators were chiefly Normans, the king, who possessed a considerable share of his father's vigor and activity, immediately turned his attention to the English, and, by promising a restoration of their ancient laws, and liberty to hunt in the royal forest, he was enabled to levy a force, by means of which he successively reduced the castles of the confederates, whom he sent to Normandy, after confiscating all their English possessions. Being now firmly seated on his throne, he forgot his promises to the English; and the death of Lanfranc, archbishop of Canterbury, freeing him from an authority which he respected, he extended his rapacity to the church, and seized the temporalities of vacant bishoprics and abbeys, to which he delayed appointing successors. In 1090, he made an incursion into Normandy, to retaliate on his brother Robert; but a reconciliation was effected between them, and Robert accompanied him back to England, and led an army for him against the king of Scotland, whom he compelled to do homage to William. The two brothers did not, however, long continue friends, and, in 1095, William was in France plotting against Robert, when he was recalled to England by a conspiracy of his barons in the north, which he quickly repressed. The following year, Robert mortgaged his dukedom to William for the sum of ten thousand marks, to enable him to fit out an expedition and join the crusaders in the Holy Land. William accordingly took possession of Normandy and Maine, and soon after, being seized with a dangerous illness, appointed Anselm, a Norman abbot, distinguished for learning and piety, to the archbishopric of Canterbury, which had remained vacant since the death of Lanfranc. Contrary to his expectation, he found in Anselm a strenuous defender of the claims of the church, and strove to depose him by means of a synod, but could not suceeed. At length Anselm obtained permission to visit Rome; and in his absence the king immediately seized on all the temporalities of his see. He soon after was obliged to visit France, to resist the progress of the lord of La Fleche. In 1100, the duke of Guienne, following the example of the duke of Normandy, applied to William to advance him money on his province, to which the latter readily agreed, and was about to pay the money and acquire possession of the territories, when an accident terminated his life. He was hunting in the New Forest, and had alighted from his horse after a chase, when, a stag suddenly starting up near him, a French gentleman, named Walter Tyrrel, let fly an arrow at the animal, which, glancing from a tree, entered the king's breast, and pierced him to the heart. Tyrrel immediately galloped to the coast, and embarked for France, where he joined the crusaders. The king's body was found by the country people, and interred, without ceremony, at Winchester. This event took place August 2, 1100, when William was in the fortieth year of his age, and thirteenth of his reign. This prince possessed vigor, decision and policy, but was violent, perfidious and rapacious.

William III, hereditary stadtholder of Holland and king of England, the greatest enemy of Louis XIV, and the founder of the system of the balance of power in Europe, became prince of Orange by the death of his father, William II of Nassau. He was born in 1650. His mother was Henrietta Mary Stuart, daughter of the unfortunate Charles I. Possessing superior talents, and educated in an excellent manner by the celebrated De Witt, he gained the love of the people, who appointed him captain-general of the union in 1672, when Louis XIV invaded the republic, and conferred on him the office of stadtholder, which had been discontinued four years before. He caused the dikes to be broken down, deceived the French generals by a skilful manœuvre, formed a junction with the imperial army, and forced the French to retreat. The party of the house of Orange now prevailed; and the states of Holland, together with four provinces, declared, Feb. 2, 1674, the stadtholdership hereditary in the house of Orange. William lost, indeed, the battle of Senef, in 1674, and that of St. Omer, in 1677; but he was, nevertheless, able to keep the enemy in check, and, by his policy, engaged the empire, Spain and Brandenburg to take part with Holland, so that a peace was brought about at Nimeguen, in 1678. He could not, however, prevent the conclusion of separate treaties. William's whole policy was directed against Louis XIV, for whom he entertained a personal hatred. To curb the ambition of the French monarch, he instituted the league of Augsburg, July 29, 1686, between the emperor, Spain, Sweden and Holland, to which Denmark, and some German princes, also acceded. Perhaps he may have had the further object of giving effect to his plans with respect to England. His wife, Mary (married in 1677), was the daughter of James II, and presumptive heiress to the throne. Unexpectedly, James's second wife gave birth to a son, June 10, 1688. The greater part of the parliament and of the nation now feared that the bigoted James would introduce the Catholic religion, and subvert the constitution. Rumor also asserted that the prince was supposititious. The Episcopalians and Presbyterians in England, under these circumstances, united, in order, by the aid of Holland, to give Mary the succession to the throne. William foresaw that England, by the policy of his father-in-law, would become more and more closely connected with France: he therefore joined with the great majority of the British nation; and the pensionary Fagel persuaded the states-general to support him with ships and troops for the preservation of British freedom and the Protestant religion. William arrived suddenly at Torbay, Nov. 5, 1688, with a fleet of 500 sail, ostensibly equipped against France, and with 14,000 troops. Upon his landing, a great part of the nobility immediately declared for him; and James's soldiers, by degrees, went over to him; so, too, did Churchill, afterwards Marlborough, who was followed even by the second daughter of James, Anne, with her husband prince George of Denmark. The overtures of the king were rejected: he therefore fled with his family to France, in December, after which William made his entry into London. The two houses of parliament, in convention, now declared that James II had broken the fundamental compact between the king and the people, and had consequently forfeited the throne. After this (Feb. 13, 1689), Mary was proclaimed queen, and William, her husband, who had, meanwhile, gone over to the English church, was proclaimed king, and was alone to conduct the administration. At the same time, the declaration or bill of rights (see *Bill of Rights*) settled the limits of the royal power, and the order of succession. This is called the revolution of 1688. Scotland followed England's example; but in Ireland, whither Louis XIV sent James with an army, the majority of the Catholics maintained the cause of the deposed king. But the victory gained by William over the army of James on the Boyne, July 1, 1690, and by his general Ginkel at Aghrim, July 13, 1691, assisted by the clemency with which he treated the vanquished party, made him master of Ireland. William was wounded in the former battle; but he caused the wound to be dressed at the head of his troops, and fought on horseback till the battle was won. In the war on the continent he was less successful. At Steinkirk he was defeated by marshal Luxembourg, in 1692, and at Neerwinden by the same general, in 1693; but he always succeeded in wresting from the French the fruits of their victories by skilful retreats and marches. He even took Namur, in 1693, in the sight of a superior hostile army. Louis was finally compelled to acknowledge him as king of England, at the peace of Ryswick, in 1697. The parliament insisted, at that time, on the disbanding of nearly the whole army, because it deemed a standing army incompatible with the security of the constitution. Soon after, the will of Charles

II of Spain, who had made the grandson of Louis XIV his heir, induced William to arm all Europe against Louis in the great alliance of the Hague, Sept. 7, 1701. For the benefit of Austria, and to preserve the balance of power, but more especially because he could not brook that Belgium should be dependent on the policy of France, he wished the Spanish monarchy to be divided, and for this purpose repaired to Holland, at the end of June, 1701. Though his lungs, at this time, were so weak that he could not speak loud, and he felt that his end was approaching, he made all preparations, with his usual sagacity, for the opening of the campaign. After the death of James II, Louis XIV having caused his son, James III, to be proclaimed king of England, William found it easy to induce England to accede to an alliance with Holland, the emperor, Denmark and Sweden, and to consent to the equipment of 40,000 soldiers and 4000 sailors. But in the midst of these projects, he broke his collar-bone by a fall from his horse, between Kensington and Hampton court, March 8, 1702, and died, in consequence of the accident, March 16, aged fifty-two years. (His wife, Mary, had already died childless, in 1695.) With him the hereditary stadtholdership of the five provinces became extinct, and the Orange possessions were divided between Prussia and William's nearest cousin and testamentary heir, John Will. Friso, the prince of Nassau-Dietz, hereditary stadtholder of Friesland and stadtholder of Gröningen, from whom the present king of Holland is descended. William's manners were too cold and ungracious to allow him to be popular with the British. Under a reserved exterior he concealed a strong love of renown and power. His chagrin, when he was compelled to disband his Dutch guards, and the regiments of French fugitives in his pay, was so great, that he was on the point of resigning the government, and was prevented with difficulty by his friends and ministers. The British continental policy, a consequence of jealousy towards France, was founded by William; but he founded, at the same time, the subsidy, or loan system, and the national debt. To obtain the majority of votes in parliament, he made use of bribery. Otherwise he reigned in the spirit of freedom and tolerant Protestantism, and agreeably to the true interest of the nation, which had been wholly disregarded by the Stuarts. The whigs were, therefore, now the ministerial party, and the house of commons from this time acquired new political importance. In the Netherlands, William founded a school of great statesmen, like Fagel and Heinsius. Immersed in politics and war, he had neither leisure nor inclination for literature and art. In conversation, he was grave and repulsive; but in business, penetrating, quick and decided; in danger, undaunted; in difficulties, unshaken; in war, bold without ostentation. Though of a weak constitution, he feared no hardships. Much as he loved fame, he hated flattery and pomp. (See *James II*, *Marlborough*, and *Great Britain*.)

William IV, king of the united kingdom of Great Britain and Ireland, third son of George III, born August 21, 1765, ascended the throne on the death of his brother, George IV, June 26, 1830. Previous to his elevation to the royal dignity, he was known by the title of the duke of Clarence. (q. v.) Being appointed lord high admiral, during the short administration of Canning, who, deserted by a large part of the tory party, had been obliged to cast about for support in every quarter, the duke of Clarence was censured for expenditures made without waiting for parliamentary appropriations, and had found it advisable to resign his office during the Wellington administration (1828). On his accession to the throne, he retained the ministers who were in office at the decease of his predecessor (the Wellington cabinet), with assurances of his confidence in their zeal and ability. Opposition, disappointed in their expectations of a change of ministry, founded on the whig family connexions formed by several of the Fitzclarences (natural children of the duke of Clarence by Mrs. Jordan), and partly on the character and previous political course of the king, now renewed their attacks on the ministry with additional vigor. In the new parliament, which met in November, the ministry being left in a minority on a motion of sir H. Parnell for referring the civil list to a select committee (15), immediately sent in their resignation; and a whig administration was formed on the twenty-second, with earl Grey at its head. The great event which will render the reign of William IV memorable, is the passage of the reform act. (See *Parliamentary Reform*, in the Appendix to this volume.) William IV is described as affable in his manners, cordial in his deportment, with somewhat of the rude heartiness of the deck, on which he had passed some of his early ears. In the navy he had, of course, een under the command of plebeians, nd the messmate and companion of imple commoners. This had given him nore knowledge of the common classes han his brother and predecessor had had n opportunity of acquiring, and, alhough he had never distinguished himelf in the navy, something of popular nanners, and a command of sea-phrases. Iis unkind treatment of Mrs. Jordan q. v.), and the license of his private life t Bushy park, are stains upon his characer. The eldest son of the king, George itzclarence, was created earl of Munster n 1831; a second, lord Adolphus Fitzlarence is captain in the royal navy; a hird, lord Frederic Fitzclarence, colonel n the army and aid-de-camp to the king; nd a fourth is one of the king's chapains. The earl of Munster is author of n Account of the British Campaign of 809 in Spain and Portugal (London, 831, 2d vol. of Memoirs of the Late Var). The five daughters of Mrs. Joran are married to the earl of Errol, the onorable J. E. Kennedy (son of earl assilis), Mr. Sidney, colonel Fox (son of ord Holland), and lord Falkland. As the ing has no children by the queen, the rincess Victoria is heiress presumptive f the crown of the British empire.

William I the Younger, count of Iassau, prince of Orange, the founder of utch freedom, was the eldest son of Villiam the Elder, count of Nassau, and uliana, countess of Stolberg, and was orn April 16, 1533, at the castle of Dilenburg, in the county of Nassau. He vas educated in the Roman Catholic aith, by Maria, queen of Hungary, sister f Charles V, and spent nine years in atendance on the person of the emperor, vho had so high an esteem for the spirit, he prudence and intelligence of the rince, that he asked his opinion respecting the most important matters, and, vhen he was but twenty-two years old, ntrusted him with the chief command f the army in the Netherlands, in the bsence of Philibert, duke of Savoy. He lso recommended him to his successor, hilip II, who, however, deceived by the alumnies of the Spaniards, regarded him s the cause of the resistance of the Ietherlands, and, therefore, would not onfer on him the office of stadtholder. s cardinal Granvella had now the entire onfidence of the king, and Margaret of arma, who was charged with the govrnment of the Netherlands, was obliged o do whatever this proud and ambitious prelate suggested, especially with respect to the introduction of the detested Spanish inquisition, and the erection of new bishoprics, the count' of Egmont, the prince of Orange, and the count of Horn, therefore, represented to the king, in writing, that, unless the cardinal was speedily recalled, his violence would drive the country to rebellion. Philip looked on this step as treason; but he concealed his anger, and recalled the cardinal, but, on the other hand, sent the duke of Alva, with Spanish and Italian soldiers, to the Netherlands. After the remonstrance, offered, in 1566, by three hundred noblemen, with count Louis of Nassau, the brother of William, at their head, against the introduction of the inquisition and the establishment of new bishoprics, had been rejected with contempt (the petitioners were styled beggars—*Gueux*), William had a meeting with Egmont, Horn, his brother Louis, and others, at Dendermond, to deliberate on the means of averting the threatening danger. The majority advised an armed resistance. Count Egmont alone, governor of Flanders and Artois, was of opinion that they should trust to the grace and clemency of the king. "This grace," replied the sagacious Orange, "will be our destruction, and Egmont the bridge by which the Spaniards will pass into the Netherlands, and which they will then destroy." When they separated, Egmont and Orange, in presentiment of the future, embraced, and took leave of each other with tears. The prince, with his wife and his children, excepting the eldest, who was studying at Louvain, repaired to Breda, whence, however, he returned to his castle at Dillenburg. Meanwhile, Alva advanced into the Netherlands. Many men of consequence, including Egmont and Horn, were immediately arrested, and executed at Brussels, June 5, 1568. When cardinal Granvella was apprized of this at Rome, he inquired whether Alva had taken Secrecy (so he termed the prince of Orange). "If this fish is not caught, the duke's fishing is good for nothing." Alva caused the prince, the counts of Hoogstraten, of Kuilenburg, and others, who had retired from the country, to be summoned before the council of twelve. The prince did not appear, but sent in an appeal to the states of Brabant, as his natural judges, and to the king in person, because, as a knight of the Golden Fleece, he could be judged only by the king in person, and by the knights of the order. He applied for protection to the emperor Maximilian II and the German princes. The emperor promised it to him, and condemned the proceedings of Alva, who had declared the prince outlawed for not appearing in person on the appointed day, had confiscated his property, stationed troops in his city of Breda, and removed his son Philip William, then thirteen years of age, from the university of Louvain, and sent him as a hostage to Spain.* The prince of Orange now took the field against Alva. He publicly professed the Protestant religion, and received aid in money and troops from several Protestant princes. With the army, which he had raised, his brothers Louis and Adolphus invaded Friesland. At first, they defeated, at Heiligerlee, in Gröningen, the Spanish general, John of Ligne, count of Aremberg, who fell in the engagement; but Adolphus also lost his life; and, as count Louis wanted money to pay his troops, he was soon after beaten by Alva at Jemmingen, July 21, 1568. William now raised a new army of 24,000 Germans, who were joined by 4000 French soldiers, and declared publicly that Alva and his council of blood (*conseil des troubles*), in Brussels, were the cause of the war. He conducted his forces, with great skill, across the Rhine and Meuse, entered Brabant, and defeated a division of the hostile army, but was unable to bring the duke of Alva, who threw himself into the fortresses, to an engagement, or to excite the people, who trembled before the Spaniards, to a general insurrection: on the contrary, he was obliged to sell his plate and baggage, and even pledge his principality of Orange to pay his arrears to his officers and soldiers. His army now dispersed. He himself, with 1200 cavalry, and his brothers, repaired to the duke of Deux Ponts, and took part in his expedition to France, against the Catholic party of the Guises. In this expedition, he distinguished himself in several battles and sieges, but, after the unhappy termination of the campaign, returned to Germany. In France, admiral Coligny had advised him to fit out privateers against the Spanish, and establish himself particularly in Zealand and Holland, from which the Spaniards would hardly be able to drive him. The prince followed this advice, and the privateers made themselves masters, in 1572, of the town and harbor of Briel, on the island of Voorn, and also took Flushing. As Alva's tyranny became more intolerable, and the people were exasperated by new exactions, several cities of Holland, Zealand, Overyssel and Gueldres publicly declared for the prince of Orange. To relieve his brother Louis, besieged by Alva at Bergen, in Hainault, he entered Brabant with 17,000 men, where Mechlin and Louvain threw open their gates to him; but the French auxiliaries, sent him by Coligny, were defeated, and he himself could not compel Alva, who had stationed his forces in an entrenched camp, to an engagement. He therefore retired, not without loss, to the Rhine, and narrowly escaped the danger of being captured by 1000 Spaniards, who broke by night into his camp. A little dog waked him in time to assemble his soldiers, and cut off the retreat of the enemy. He next proceeded to Utrecht and Zealand, where the Dutch privateers had appointed him their admiral. In 1575, the states of Holland conferred on him the sovereignty and chief command, for the time that the war with Spain should last; and the example was followed by Zealand, and afterwards by Utrecht, Gueldres and Overyssel. This trust was renewed in 1581. Some days before they openly announced their defection from Spain, the states did homage to the prince as their sovereign, and took the oath of allegiance. This sovereignty, however, was merely personal; but, in 1582, the grant of the hereditary dignity of the old counts of Holland, to which was annexed the possession of their domains, was made him by the states, and formally accepted. The prince was deserving of this confidence. He had already, in 1573, equipped a fleet of 150 sail at Flushing. This fleet was always superior to the Spanish, so that it may be truly said, that the Dutch achieved their freedom on the ocean. After Alva and the prince had each taken several cities, Louis of Zuñiga and Requesens succeeded the duke in 1573, and, April 14, 1574, defeated Louis and Henry of Nassau, the brothers of the prince, who both fell on the field of battle. William raised the siege of Leyden by breaking down the dikes. Zuñiga soon after died; but the Spanish soldiers at Antwerp and other places committed such outrages, that all the provinces of the Low Countries, excepting Luxemburg, united at Ghent, in 1576, to expel the foreign troops, and relieve themselves from religious restraints; and when the new stadtholder, John of Austria, a natural brother of the king, violated the privileges granted them by the edict of 1577, the states of Antwerp called the prince of Orange to their aid. The people received him with acclamations in Brussels, where a part of the estates offered him the stadtholdership. But as several nobles were opposed to him, he effected the adoption of a resolution that Matthew of Austria should be received as stadtholder, while he himself should have the rank of lieutenant-general; but he retained the management of all public business. Meanwhile, by the victory at Gembloura, January 31, 1578, the Spaniards recovered their superiority in the Walloon provinces, which were zealously Catholic. The new stadtholder, Alexander Farnese of Parma, appointed by the king after the sudden death of John, was a politic general, who knew how to win the favor of the Belgians, dissatisfied with the religious peace, or the political equality of the two churches, and converted to the Spanish interest the nobles, who were disaffected towards the prince of Orange. The prince, therefore, brought the seven northern provinces into closer connexion, by the union of Utrecht, January 23, 1579, and thus laid the foundation of the republic of the United Netherlands. (q. v.) The negotiations for peace at Cologne having been fruitless, the states, at the proposal of the prince, conferred the sovereignty, in 1580, on Francis, duke of Anjou, brother of king Henry III of France, and on July 26, 1581, renounced their allegiance to king Philip of Spain, as a tyrant. The king had already declared the prince of Orange outlawed, as a "heretic and false Christian, another Cain and Judas, a committer of sacrilege, a perjurer, an instigator of the disturbances in the Netherlands, and a real pest of human society," and had set a price of 250,000 dollars on his head. Whoever should deliver him, living or dead, into the hands of the Spaniards, was to receive a pardon for all crimes, and, with his posterity, be raised to the rank of nobility. The estates, in consequence, gave their stadtholder a body-guard, and the prince replied in a violent manifesto, in which he accused the king of lust and murder, of the death of his son don Carlos, and of his wife Elizabeth. Meanwhile, the duke of Parma took several fortified places, but was obliged to raise the siege of Cambray, when the duke of Anjou advanced with an army. The French prince was hereupon proclaimed duke of Brabant, March, 1582, on which occasion the prince of Orange presented him the ducal coronet, and publicly administered the oath, that he would reign agreeably to the tenor of the compact. This event took place in Antwerp, where an attempt was soon after made to assassinate the prince. A Spaniard, named Jaureguy, shot him with a pistol: the ball entered under the right ear, and passed out through his left cheek, destroying several of his teeth. The perpetrator was cut down on the spot by the guard. A Spaniard, Salzedo, and an Italian, Francis Baza, were likewise apprehended, who had received money from the duke of Parma to make way with the duke of Anjou and the prince of Orange. Both were convicted: one was torn to pieces by four horses, at Paris; the other put an end to his own life. After these occurrences, the duke of Anjou began to aim at unlimited power, heedless of the advice of the prince of Orange. But his design of making himself master by force of the most important cities, such as Bruges and Antwerp, was frustrated by the citizens; and he returned to France, January 3, 1583, where he died the same year. July 10, 1584, the prince of Orange was shot in his palace, at Delft, by a young Burgundian, named Balthasar Gerard, who had insinuated himself into his confidence. He was rising from table, when the assassin fired a pistol at him, containing three balls. He fell, and died with the words, "*Mon Dieu! Mon Dieu! Ayez pitié de moi et de ton pauvre peuple!*" His murderer was not more than twenty-two years old. On his examination, he confessed that a Franciscan of Tournai, and a Jesuit of Treves, had persuaded him to commit the deed by the assurance that it would secure his eternal happiness. William was fifty-two years old, was well formed, had chestnut hair, and a brownish complexion. He spoke little; but what he said was judicious and pleasing. In the art of winning the good will of men, he was a master. Towards his people, his demeanor was friendly and discreet. He frequently went in the streets with his hat off, and conversed freely with the citizens. In his house, he was hospitable, a lover of splendor, and liberal of every thing but his confidence. His acute understanding penetrated the character of men and events; but he himself was impenetrable. Reserved in his manners, and apparently even timid, when he spoke, the fire and boldness of his eloquence carried along the minds of all. Danger he met with calm equanimity, obstacles with a wise firmness. He was not anxious for his own exaltation, but for the interest of the people: the freedom, therefore, which he established did not perish with him, and his name has acquired a permanent place in the history of Europe. He was four times married. His son Maurice, who succeeded him in the office of stadtholder, was one of the greatest captains of his age. His other son, Frederic Henry, succeeded Maurice, and died in 1647. William III, king of England, was grandson of Frederic. There are three lives of William, in Dutch, by anonymous authors. See, also, *Meursii Guglielmus Auriacus*, etc. (Amsterdam, 1638, fol.), and Kluit's *History of the Dutch Government.*

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* He was eventually released, and died in 1618.

William I, elector of Hesse, was born in Cassel, in 1743, during the reign of his grandfather. His father, Frederic II, ascended the throne in 1760. Having become a Roman Catholic in 1754, the education of the children was left, according to agreement, entirely with his wife, who also received the government of the county of Hanau as the guardian of the children. Prince William studied at the university of Göttingen. During the seven years' war (q. v.), he lived at the court of Christian VII, whose second sister he married in 1764. When of age, he took the government of the county of Hanau out of the hands of his mother. The young prince was active, economical, just and popular. In 1776, he concluded, as did several other German princes, a treaty with England, to furnish troops to be employed against her colonies in North America, then at war with the mother country. Two years later, he was made a major-general by Frederic the Great of Prussia, and took part in the war of the Bavarian succession. In 1785, he became sovereign of all the Hessian territories, after the death of his father. He now showed himself severe, active and just; but his disposition for saving often degenerated into avarice, whilst his mania for soldiers became a curse to his country. He ruled independently, and closely watched the officers of his government, often protecting the peasants, whom he considered as his property, against them. He improved the schools and churches, the police, and the administration of justice. In 1787, he concluded another treaty with England, agreeing to furnish 12,000 men, in consideration of receiving for their service, 675,000 crown-dollars annually. He also marched troops against France when the revolution broke out. The peace of Basle, concluded August 28, 1795, between Prussia and France, put an end to his exertions in this war. By the peace of Luneville, William received the dignity of elector, and an indemnification for the territory that he had lost, taken chiefly from the possessions of the elector of Mayence. He took the greatest care of the increase of his private treasure. His known disposition towards France, his relations with Prussia (he being a field-marshal in her service, and his eldest son having married, in 1797, the sister of Frederic William III of Prussia), and his continual military preparations, drew upon him the misfortunes which befell him after the battles of Jena (q. v.) and Auerstädt (q. v.) In consequence of the threats of Napoleon, and the advance of French troops under Mortier and the king of Holland, he fled to the neutral states of the king of Denmark, saving only his family and his treasures. By the peace of Tilsit (q. v.), and the foundation of the kingdom of Westphalia, William I was deprived of all his dominions, and lived, from July, 1808, in Prague. In 1809, when Austria took arms against France, the exiled elector issued a proclamation to his former subjects, and began to collect an army near Eger, in Bohemia, with which he thought to reconquer his electorate; but the issue of the war put an end to his undertaking. The victory of the allied powers at Leipsic (q. v.), in 1813, improved his condition. In November, 1813, he entered his former capital, the city of Cassel. Though seventy years old, he resumed the labors of government with great activity, but not to the benefit of his people. His ideas of monarchical power were entirely at variance with the spirit of the times. Every thing was to be put on the old footing: 20,000 men (with *queues*, like the soldiers of former times) soon marched to join the allies, but were allowed to return even before the peace of Paris, on condition that they should be kept ready for immediate service. The elector, however, did not comply with this condition, from motives of economy, and became thereby involved in difficulties with the allies, who marched troops into his country. By the mediation of Prussia, this difficulty was adjusted. In 1815, the elector sent 15,000 men to act against France; they fought at Sedan, Charlesville, Mezières, &c. His wish to see the German empire restored by the congress of Vienna was as fruitless as his plan to have himself acknowledged king of the Catti (q. v.), so that he retained his former title of elector; and, having received several additions to his territory, he called himself also grand duke of Fulda and prince of Isenburg. He would not acknowledge the validity of the sale of the crown domains, which had been made under Jerome, and took them away from the buyers.—This fact, the crying injustice of which was admitted by Prussia and Austria, is mentioned in the article *Domain*.—The assemblies of the estates, to which he had added the estate of peasants, gave him much trouble, as the ground assumed by them did not agree with his antiquated notions of the rights of the crown. Towards his officers he was avaricious and severe. His soldiers received little pay and much drilling and flogging. He refused to separate the public treasury from his enormous private accumulations. His conduct towards individuals who had been in office under the Westphalian government was unprincipled. On the other hand, he must be admitted to have been careful to prevent his officers from abusing their authority. He was accessible to his subjects, and protected justice when it did not clash with his interests, or unless he had formed wrong notions of what was right. He died in 1820, and was succeeded by his only son, the elector William II.

William I (William Frederic of Orange), king of the Netherlands and grand duke of Luxemburg, was born Aug. 24, 1772. His father, William V, prince of Orange and Nassau, hereditary stadtholder, who died in 1806, at Brunswick, was descended from John, the youngest brother of the great William I of Orange (q. v.); his mother was a princess of Prussia. In 1788, he made a tour in Germany, and remained for some time in Berlin, at the court of his uncle, king Frederic William II. In 1790, he entered the university of Leyden. In 1791, he married the Prussian princess Frederica Louisa Wilhelmina, sister of the present king of Prussia. He then undertook many improvements in the army, but suffered much opposition from the patriots, who had been put down, in 1787, by Prussian troops. Part of them had fled to France; and the national convention declared war against the stadtholder, Feb. 1, 1793. Dumouriez conquered Dutch Brabant; but the prince, the subject of this article, delivered it, by the aid of the troops of the allies, after the victory at Neerwinden (q. v.), March 18, gained by prince Coburg, in the Austrian service, over Dumouriez. The crown-prince now prevented the French from entering Western Flanders. But, September 13, he was attacked in his position between Menin and Werwick, with such superior force that he was obliged to retreat behind the Scheldt, after a long resistance, in which his brother, prince Frederic, was wounded. The next year, he took Landrecies. He then forced the enemy to retire behind the Sambre; but, in the great battle on June 26, in which he had been successful at the head of the right wing, he was obliged to retreat, after the French had taken Charleroi by assault, and beaten the left wing at Fleurus. The Austrian forces having retreated, before Pichegru and Jourdan, behind the Meuse, the prince, with his enfeebled army, could only protect the frontiers of the republic, in unison with the duke of York. But the fortresses were reduced, and the ice enabled the enemy to pass the Waal, so that Pichegru entered Utrecht, Jan. 17, 1795. The party of the patriots favored the enemy, and the stadtholder soon found himself incapable of saving the republic, forsaken by her allies. His sons, therefore, gave up their commands, Jan. 16, and William V embarked, on the 18th and 19th, with his family, at Scheveningen, in nineteen poor fishing vessels, for England. Hampton court was assigned as a residence to the exiled family; but the two sons soon returned to the continent, in order to arm a body of Dutch emigrants at the expense of England, which body, however, after the peace of Basle, was again dissolved. Prince Frederic entered the Austrian service, and died at Padua, in 1799. The subject of this article went with his family to Berlin, where he expected a favorable change from the influence of Prussia, then on friendly terms with France. He occupied himself with the education of his children, the cultivation of science, and the improvement of some estates which he had bought in Poland, and on which he immediately abolished bondage. His father had ceded to him the places which the diet had assigned him in Germany by way of indemnification, namely, Fulda, Corvey, Dortmund, &c., August 29, 1802, and he took possession of them in the same year. He lived at Fulda, but spent part of the winter in Berlin. Living himself in the most economical manner, he established in his new possessions an economical administration, and reformed numerous abuses. His impartial treatment of all his subjects, of whatever religion, gained him the hearts of all.

After the death of his father, he took possession of the lands of Nassau belonging to his family. But, having refused to become a member of the confederacy (q. v.) of the Rhine, he lost the sovereignty over the lands of Orange, which were divided between his relations of Nassau-Usingen and Nassau-Weilburg, and Murat, grand-duke of Berg. He was also threatened with the loss of Fulda if he should continue to decline joining the confederation; but in case he should join, he was to be rewarded by the grant of Würzburg. But he declared that he would not dishonor the name of Orange by bending his neck to a foreign master. In August, 1806, he went to Berlin, where, as commander of a Prussian regiment and lieutenant-general, he subsequently received the command of a part of the right wing of the Prussian army between Magdeburg and Erfurt. After the battle of Jena, he was obliged to follow field-marshal Möllendorf to Erfurt, and became a prisoner when Möllendorf capitulated. He was, however, permitted to live with his wife in Prussia. But Napoleon declared him, the elector of Hessia, and the duke of Brunswick, to have forfeited their dominions; and Fulda took the oath of allegiance to the emperor, Oct. 27. Corvey, Dortmund, and the county of Spiegelberg, were given, in 1807, to the kingdom of Westphalia and the grand-duchy of Berg. His domains, even those reserved to him by the act of confederation, were taken by Berg and Würtemberg; but Bavaria did not follow their example, and the other princes promised to pay him the surplus revenue of the lands. He had gone, in the mean time, to Dantzic, whence he proceeded to Pillau. In the peace of Tilsit, he was not mentioned. He retained only his possessions in the duchy of Warsaw, and again lived privately in Berlin, where his eldest son was educated in the military academy. (See the following article.) When Austria was engaged in war with France, in 1809, the unfortunate prince joined the army of the archduke Charles, and fought at the battle of Wagram. He then returned to Berlin. In the mean time, particularly, however, after the battle of Leipsic, influential men in the Netherlands were laboring to prepare the way for the restoration of the house of Orange. William Frederic was then in England, in order to concert, with the British government, measures to support the Dutch. After the battle of Leipsic, the victorious armies approached the frontiers of Holland; the people rose in Amsterdam, Nov. 15 and 16; and even the Hague, in the midst of French troops, declared itself, on the 17th, for the prince. When the prince received the news of these movements, he embarked, and landed, Nov. 29, at Scheveningen. The people received him with demonstrations of joy. In Amsterdam, the commissioners of the provisionary government issued, Dec. 1, the proclamation, "The Netherlands are free!" and "William I is the sovereign prince of this free country," without being authorized to do so by the nation. The prince yielded reluctantly, and declared that a constitution should be established to secure the liberties of the people. Twenty-three fortified places were yet in the hands of the enemy, who were encamped near Utrecht. But the allies soon drove them from the country. William Frederic hastened the arming of the people, and charged a committee to draw up a constitution, which was adopted, March 29, 1814, by the representatives of the people, and then sworn to by the monarch. He had also again taken possession of his German hereditary possessions, towards the end of 1813. After this, the congress of Vienna united Belgium and Liege with the Netherlands, to form a kingdom; and the prince was proclaimed king of the Netherlands, prince of Liege and duke of Luxemburg, under the name of William I, on March 16, 1815, at the Hague. He and his Dutch subjects were both dissatisfied with this arrangement, apprehending that the Dutch commerce would suffer by this union with the manufacturing state of Belgium: the difference of language and religion also presented great obstacles: but England wished to retain possession of several of the former Dutch colonies, and Belgium was given in exchange for them. The king was also obliged to cede to Prussia his hereditary possessions in Germany in exchange for Luxemburg. Since that time, William I has ruled with great integrity and firmness, as even his enemies have admitted, except in the fiercest heat of party struggles.* The king has conscientiously and often scrupulously adhered to the constitution. Justice was always a predominant trait in his character. A committee was charged, in 1815, with the drawing up of a general code for the Netherlands. It ended its labors in 1819. June 21, 1816, William became a member of the holy alliance. (q. v.) In 1814, he founded the William order of military merit, and, in 1815, the order of the Belgic lion for civil merit. He resided, before the late revolution, alternately at the Hague and in Brussels; lives simply, is very industrious, and accessible to all; and, though the majority of the Dutch were anti-Orange, and, therefore, anti-monarchical, he is popular with them, particularly since 1830.—The article *Belgium*, in the Appendix to this volume, treats of the causes of the Belgic revolution, which is not to be ascribed to him.—It was, perhaps, impracticable to unite under one government two nations so different in language, religion, and ordinary occupations, to say nothing of the powerful influences from without which hastened the disruption. His endeavors to disseminate knowledge in Belgium were considered, by the Catholics, as acts of hostility towards their religion.

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* M. Surlet de Chokier, the regent of Belgium, who was, for fifteen years, in the states-general, and generally in opposition to the court, called the king, in 1818, "one of those philosophic princes who reign for the happiness of humanity;" and March 8, 1830, four months before the Belgic revolution, he thus expressed himself: "No one is more penetrated with gratitude than I towards his august person. I can say, without flattery or compliment, a king like ours, a man of

William, Frederic George Louis of Nassau, prince of Orange, crown-prince of the kingdom of the Netherlands, born Dec. 6, 1792, was educated in Berlin and at Oxford. He made his first campaign in the English army, and, in 1811, entered the Spanish service as lieutenant-colonel. His courage and activity gained him the esteem of the duke of Wellington, whose aid-de-camp he was. At the siege of Ciudad-Rodrigo, he was one of the first in the assault. In the battle of Badajoz, he entered the city at the head of an English column, which he had stopped in its flight, and led back into the action. He displayed equal bravery at Salamanca, and every other affair in the campaign. He was then made aid-de-camp to his Britannic majesty, and received a medal, inscribed Ciudad-Rodrigo, Badajoz, Salamanca. His courage and conduct were conspicuous at Quatre-Bras (q. v.), on June 16, and at Waterloo, on June 18, 1815, where he charged the enemy at the head of his troops, and was wounded in the shoulder. After his recovery, he joined the allies in Paris, when it was proposed that he should marry the princess Charlotte, daughter of the prince-regent (see *Charlotte*); but he declined, considering it unbecoming the heir of a throne to be the first subject of a queen of England, and being unwilling to make the Netherlands a dependency of a foreign state. In 1816, he married Paulowna, sister to the emperor Alexander. It is not yet time to judge impartially of his conduct in the Belgic revolution of 1830. He was thought by some to have wished to become sovereign of Belgium, perhaps with the view of ruling over both kingdoms, though separated, on the demise of his father. He had the courage to enter Brussels when in a state of revolt, and when a plot to murder him is said to have existed. In July, 1831, he was made, by his father, generalissimo of all the forces of the Netherlands. Aug. 2, the army of the Netherlands entered Belgium. The Belgians retreated, and were entirely routed on several occasions, particularly at Hasselt; their conduct in the field forming a ludicrous contrast with their extravagant boasting before the war began. Within less than two weeks, the "Belgic armies" were routed; and the prince of Orange was marching upon Brussels, from which he was but a few miles distant, when he received orders from the king, his father, to desist from further hostilities, in consequence of a French army having come to support the Belgians. Many attempts were made upon the life of the prince of Orange. At Tirlemont, when he was riding out of the city with marshal Gerard (commanding the French army), a ball was fired at him, but only hit the coach. When he arrived at the gate of the city, a Belgian attacked him with a sword, but was cut down by the French. This war, it must be understood, was not undertaken to reconquer Belgium, from which the Dutch always wished to be separated, but to force the Belgians to fulfil the conditions of the London conferences. The prince showed much skill in the plan of the campaign.

Williams, Roger, was born of reputable parents in Wales, in 1598. He was educated at the university of Oxford, was regularly admitted to orders in the church of England, and preached for some time as a minister of that church: but, on embracing the doctrines of the Puritans, he rendered himself obnoxious to the laws against non-conformists, and embarked for America, where he arrived, with his wife, in February, 1631. In April following, he was called, by the church of Salem, as teaching elder, under their then

talent and constitutional principles, faithful to his oaths, who listens to all his subjects, and even to foreigners, who boast over Europe of the reception with which they are honored, &c."

pastor, Mr. Skelton. This proceeding gave offence to the governor and assistants of the Massachusetts bay, and, in a short time, he removed to Plymouth, and was engaged as assistant to Mr. Ralph Smith, the pastor of the church at that place. Here he remained until he found that his views of religious toleration and strict non-conformity gave offence to some of his hearers, when he returned again to Salem, and was settled there after Mr. Skelton's death, in 1634. While here, and while at Plymouth, he maintained the character he had acquired in England—that of "a godly man and zealous preacher." He appears, however, to have been viewed by the government of that colony with jealousy, from his first entrance into it. He publicly preached against the patent from the king, under which they held their lands, on the ground that the king could not dispose of the lands of the natives without their consent. He reprobated the "calling of *natural* men to the exercise of those holy ordinances of prayers, oaths, &c."; but what rendered him most obnoxious, undoubtedly, was his insisting that the magistrate had no right to punish for breaches of the first table, or, in other words, "to deal in matters of conscience and religion." These causes, conspiring with others of less importance, finally occasioned a decree of banishment against him, in the autumn of 1635, and he was ordered to depart the jurisdiction in six weeks, but was subsequently permitted to remain until spring, on condition that he did not attempt to draw any other to his opinions; but "the people being much taken with the apprehension of his godliness," in January following, the governor and assistants sent an officer to apprehend him, and carry him on board a vessel then lying at Nantasket, bound to England; but before the officer arrived, he had removed, and gone to Rehoboth. Being informed by governor Winslow, of Plymouth, that he was then within the bounds of the Plymouth patent, in the spring he crossed the river, and commenced the settlement of Providence. He afterwards embraced some of the leading opinions of the Baptists, and, in March, 1639, was baptized by immersion, at Providence, by Ezekiel Holliman, whom he afterwards baptized. He formed a society of this order, and continued preaching to them for several months, and then separated from them, doubting, it is said, the validity of all baptism, because a direct succession could not be traced from the apostles to the officiating ministers. In 1643, Williams went to England, as agent for the colonies at Providence, Rhode Island, and Warwick, to solicit a charter of incorporation, which he finally procured, and returned in September, 1644. In 1651, serious difficulties having been raised in the colony, by Coddington's procuring a charter, which gave him almost unlimited authority over the islands of Narragansett bay, Williams and Clarke were despatched agents of the colony to procure a revocation of it. This they effected in October, 1652. Williams returned in 1654; but Clarke remained in England, and procured a second charter in 1663. He was several times, both before and after this period, elected to the office of president or governor of this colony. He died in April, 1683, at Providence. Very few incidents in his life are to be collected from his writings; and the prejudices of contemporary, and even later historians, who have mentioned him, render it difficult to form a true estimate of his character. He appears to have been a man of unblemished moral character, and of ardent piety, unyielding in opinions which he conceived to be right, and not to be diverted from what he believed to be duty, either by threats or flattery. After he was banished, though he conceived himself to be an injured man, he gave his persecutors information of the Indian plot, which would have destroyed their whole settlement, and concluded treaties for them, which insured their peace. He is accused, and not unjustly, of frequent changes in his religious sentiments; but these changes should be ascribed to conviction, for they militated against his worldly interest. He was at all times the undaunted champion of religious freedom; and, strange as it may seem, this was probably the first thing that excited the prejudices of the Massachusetts and Plymouth rulers against him. He was accused of carrying this favorite doctrine so far as to exempt from punishment any criminal who pleaded conscience; but this he expressly denied. Of the publications of Williams that have reached us, the first, in order of time, is his Key into the Language of America, republished in 1827. This, it would seem, was composed during his voyage to England, in 1643, and was printed at London soon after his arrival. It preceded Eliot's works on the same subject. Very few copies of the original edition are now extant. The one belonging to the Massachusetts historical society is the only one known to be in this country. His next work was his Bloody Tenent, written in answer to Cotton's treatise, which upheld the right and enforced the duty of the civil magistrate to regulate the doctrines of the church. This called forth a reply from Cotton, entitled the Bloody Tenent Washed and made White in the Blood of the Lambe; and this was followed by a rejoinder from Williams, entitled the Bloody Tenent yet more Bloody, by Mr. Cotton's Endeavor to Wash it White. In these works of Williams, the doctrine of religious liberty and unlimited toleration are illustrated in strong language, and supported by stronger arguments—arguments that preceded those of Locke, Bayle and Furneau. In 1672, Williams had a controversy with the Quakers. He maintained a public dispute with them at Newport and at Providence, in August, 1672, and afterwards published his George Foxe digged out of his Burrowes, in answer to a work of Fox. This is a rare book.

Williams, William, a signer of the Declaration of Independence, was born April 8, 1731, at Lebanon, in Connecticut, where his father was the minister of a parish. At the age of sixteen, he entered Harvard college, and graduated with honor in due time. After serving a long time in the legislature of his native state, he was, during the years 1776 and 1777, a member of the general congress. At one time, when the paper money was of so little value, that military services could not be procured for it, he exchanged for it more than two thousand dollars in specie for the benefit of the cause, which he never recovered. He contributed to arouse the spirit of freedom by several essays on political subjects, and once by an impressive speech. During the whole revolutionary war, he was very useful in obtaining private contributions of supplies for the army. He died Aug. 2, 1811, in the eighty-first year of his age.

Williams, Otho Holland, a brigadier-general in the American army, was born in Prince George's county, Maryland, in 1748. He was first placed in the clerk's office of his native county, and then removed to the clerk's office of the county of Baltimore, of which he had the principal direction. In the beginning of the revolutionary struggle, he was appointed lieutenant in the company of riflemen raised in the county of Frederick, and marched, in 1775, to the American camp near Boston. The following year, a rifle regiment was organized, in which he was appointed major. It formed part of the garrison of fort Washington, in New York, when captured by the British, and gained great honor by the gallant manner in which it withstood the attack of the Hessian column to which it was opposed. Major Williams was taken prisoner with the rest of the defenders of the fort, but was soon exchanged. While in captivity, he became entitled to the command of a regiment, and, on recovering his liberty, was placed at the head of the sixth Maryland. The Maryland and Delaware lines having been detached to South Carolina, soon after the reduction of Charleston, he accompanied the baron de Kalb; and, when general Gates assumed the command of the southern army, he was named adjutant-general, in which station he remained until the close of the war. In the disastrous battle of Camden, he behaved with great distinction. At the crossing of the river Dan, he performed efficient service; and he was very useful in thwarting the various attempts of Cornwallis to strike a blow at Greene after the return of the latter into North Carolina. Previous to the disbandment of the army, congress made him brigadier-general. He died in July, 1794, of a pulmonary complaint.

Williams, Helen Maria; a distinguished writer on history and general literature, born in the north of England, in 1762. She went to London at the age of eighteen, and was introduced to the literary world by doctor Andrew Kippis. The first production of her pen appears to have been a legendary tale, in verse, entitled Edwin and Eltruda (1782); and this was followed by an Ode on Peace (1783); Peru, a poem (1784), and a Collection of Miscellaneous Poems (1786, 2 vols., 8vo.). In 1788, she published a poem On the Slave-Trade; and, the same year, she visited France, where she formed many literary and political connexions. In 1790, she went again to France, and settled at Paris; and soon after appeared her Letters written from France, in the Summer of 1790, of which she published a continuation in 1792. The object of these, and of some contemporary productions of this lady, was to recommend the doctrines of the Girondists (q. v.); and, consequently, on their fall, under the tyranny of Robespierre, she incurred great danger, and, being arrested, was for some time a prisoner in the Temple at Paris. On obtaining her freedom, she renewed her application to literary pursuits. Besides many works of minor importance, she engaged in an English translation of the Personal Narrative of the Travels of Humboldt and Bonpland in America (1814—1821, 6 vols., 8vo.). Miss Williams died at Paris, in December, 1827. In addition to the works already mentioned, she wrote Julia, a novel (2 vols.); a Narrative of Events in France in 1815; Letters on the Events which passed in France since the Restoration in 1815; and other pieces; and she was at one time a contributor to the New Annual Register.

Williamsburg; the seat of justice for James City county, Virginia, twelve miles west of Yorktown; population about 1500. It was formerly the metropolis of the state, but has greatly declined. The college of William and Mary was founded here in 1693, in the time of king William, who gave it an endowment of £2000 and 20,000 acres of land, together with a revenue of a penny a pound on tobacco exported to the plantations from Virginia and Maryland. To these, other endowments were added; and the whole annual income of the college was formerly estimated at £3000. The income has greatly diminished, and its accommodations are poor. It has seven instructers, and sixty students, and a library of 3600 volumes. The commencement is on the 4th of July.

Williamson, Hugh, was born Dec. 5, 1735, in Chester county, Pennsylvania, and graduated at the college of Philadelphia, May 17, 1757. He early showed much fondness for mathematics. He studied theology, and was licensed to preach; but the infirm state of his health induced him to relinquish the pulpit, and to turn his attention to the study of medicine. From 1760 to 1763, he was professor of mathematics in the college of Philadelphia. In 1764, he went to Edinburgh to pursue his medical studies. He next proceeded to London, where he studied twelve months, and then repaired to the university of Utrecht. After his return to Philadelphia, he practised for some years with much success, but, at length, gave up the profession on account of the weak state of his health, and remained a number of years devoted to literary and philosophical pursuits. In 1769, he was appointed by the American philosophical society a member of the committee to observe the transit of Venus and Mercury over the sun's disk, which occurred in that year. The results of the observations made by him are contained in the first volume of the Transactions of the society. In this year, moreover, he presented to the American philosophical society a theory respecting a remarkable comet that had appeared in the month of September. The tail, he contended, was only the atmosphere of the comet thrown behind the nucleus as it approached the sun, and illuminated by the refracted rays of the sun's light. The body of the comet, he conceived, might be habitable. In 1770, doctor Williamson published, in the Transactions of the above-mentioned society, some remarks upon the amelioration of climate which had taken place more especially in the middle colonies of North America, which obtained considerable attention in Europe. In 1773, he was appointed, in conjunction with doctor Ewing, to make a tour through England, Scotland and Ireland, to solicit benefactions for the academy of Newark, in Delaware; but, owing to the irritation subsisting at the time against the colonies, they were not very successful. They sailed from Boston just after the destruction of the tea; and doctor Williamson was examined upon the subject before his majesty's privy council. He gave the first correct information to the ministry respecting the state of public feeling; and lord North declared that he was the first person whom he had ever heard intimate the probability of a war. Some time afterwards, he obtained possession of the celebrated letters of Hutchinson and Oliver, and gave them to doctor Franklin, who transmitted them to Boston, by which the machinations of those persons were discovered. The letters were obtained in a singular manner: Having heard that they were deposited in an office (appertaining, it is believed, to the treasury department) different from that in which they ought regularly to have been placed, and having understood that there was little exactness in the transaction of the business of that office, doctor Williamson repaired to it, and stated that he had come for the last letters that had been received from governor Hutchinson and Mr. Oliver, mentioning, at the same time, the office in which they should have been placed. The letters were delivered to him, and, after carrying them to doctor Franklin, he left London the next day for Holland. He returned to America in 1777. The ship in which he sailed was captured off the capes of Delaware; but he, with another passenger, escaped in an open boat, with some very important public despatches, of which he was the bearer. Soon afterwards, he went to Charleston on a mercantile speculation, and thence to Edenton, in North Carolina, where he settled, and traded to neutral islands in the West Indies. He also resumed there the practice of medicine, and, in the beginning of 1780, was placed at the head of the medical department of the militia of North Carolina, despatched to the relief of South Carolina after the occupation of Charleston by the enemy. In the autumn of the same year, he was invested with a similar trust. In the spring of 1782, he was chosen a representative of Edenton in the house of commons of North Carolina, and was afterwards elected to congress. In 1787, he was one of the delegates from North Carolina to the convention at Philadelphia that framed the federal constitution, of which he was a decided advocate. In December of the same year, he was again honored with a seat in congress, but declined a reëlection. The last act of his public career was attending the second convention of North Carolina, in 1789, to consider the adoption of the federal constitution, the first having rejected it. It was carried by a majority of two to one. He then retired to private life, the tranquillity of which was interrupted by domestic losses, the deaths of his wife and his two sons. He persevered, however, in his literary and philosophical pursuits. In 1811, he published, in one volume, 8vo., his Observations on the Climate in different Parts of America, compared with the Climate in corresponding Parts of the other Continent, and exposed the futility of the assertion that America is a country in which the frigid temperature and vice of the climate prevent the growth and expansion of animal and vegetable nature, and cause the degeneration of man and beast. In 1812, appeared his History of North Carolina (2 vols., 8vo.)—a valuable addition to the annals of the American continent. His death occurred suddenly, May 22, 1819, in the eighty-fifth year of his age.

Williamstown; a post-town of Berkshire county, Massachusetts, at the north-west corner of the state, 28 miles north of Lenox, 135 west by north from Boston; population in 1830, 2137. It has two Congregational churches and a college. Williams college was incorporated in 1793. The buildings are two brick edifices of four stories, and a laboratory. In 1831, there were seven instructers, 115 students, 2550 volumes in the library, and 2000 in the students' libraries. The whole number of graduates was then 721. Commencement is on the first Wednesday in September. There is a medical school connected with this college, but it is situated at Pittsfield. In 1831, it had 85 students.

Willow (*salix*). The species of willow are very numerous, and most of them are confined to the more northern parts of the globe. They are trees or shrubs, with alternate and usually lanceolate leaves, and inconspicuous flowers, which are diœcious, and disposed in aments. Most of them grow in moist situations, and are constant attendants along the margins of streams and water-courses. This genus is considered the most difficult to understand of the whole vegetable world, as the male and female flowers are situated upon different plants, appear before the expansion of the leaves, and soil, situation and climate produce a very considerable change in their appearance. The bark of some willows is employed for tanning, and sometimes, from its bitter and astringent properties, is given, in intermittent fevers, as a substitute for cinchona. The long pliant branches of the osiers are used for the fabrication of baskets, and other agricultural implements; and they are cultivated pretty extensively for these purposes.—The weeping willow (*S. Babylonica*), so generally admired for its long, pendent branches, grows wild in Persia, and, besides, has long been a favorite ornamental tree in China. Almost all the willows are of the easiest propagation and culture. Care should be taken, however, with most of them, that the soil is not absolutely bog or marsh.

Wilmington; a borough and port of entry in Newcastle county, Delaware, between the Brandywine and Christiana creeks, one mile above their confluence, and two miles west of the Delaware; lat. 39° 43′ N.; lon. 77° 34′ W. It is twenty-eight miles south-west of Philadelphia. The town is built on a gently-rising ground, the most elevated part of which is one hundred and twelve feet above tide-water; and its situation is pleasant and healthy. It is regularly laid out, and most of the buildings are of brick. It has considerable trade, and is the largest town in the state. Population in 1820, 5268; in 1830, 6628. The Christiana is navigable as far as Wilmington, for vessels drawing fourteen feet of water. On the Brandywine, at a little distance from the town, there is a considerable village, about one half of which belongs to this borough. Here is the finest collection of flour-mills in the U. States, known as the *Brandywine mills*. They are situated at different places within ten miles of Wilmington; and many factories are established within the same district.

Wilmington; a post-town, port of entry, and capital of New Hanover county, North Carolina, on the east side of cape Fear river, just below the confluence of the north-east and north-west branches, about thirty-five miles from the sea, ninety miles south-east of Fayetteville; lat. 34° 11′ N.; lon. 78° 10′ W.; population in 1820, 2633. It contains the county buildings, two banks, and has an extensive trade. The principal part of all the exports from North Carolina are from Wilmington. The harbor admits vessels of three hundred tons; but the entrance is rendered difficult by a large shoal. Opposite the town, there are two islands, which divide the river into three streams. These afford the best rice-fields in the state. November 4, 1819, about two hundred buildings were consumed by fire. The damage was estimated at $1,000,000.

Wilmot. (See *Rochester*.)

Wilna (*Wilno*); a city of Russia, capital of the government of Wilna, formerly capital of Lithuania, on the Wilia, 170 miles east of Kőnigsberg, 350 south-south-west of Petersburg; lon. 25° 17′ E.; lat. 54° 41′ N.; population in 1826, 25,000, Jews 5000; see of a Greek archbishop and of a Catholic bishop. It has thirty-five Roman Catholic churches and convents. It is situated in a hilly country, and occupies several eminences near the river; is about four miles in circuit, built chiefly of wood, very deficient in cleanliness, and exhibits a striking contrast of wretchedness in some buildings, and gorgeousness in others. It contained a Catholic university, established in 1570, and new-modelled in 1803. In 1832, the university was suppressed, undoubtedly on account of the insurrection of Lithuania. Here is a seminary for the education of clergy of the Greek church, and one for the education of Catholic clergy, and a college of Piarists. The trade consists in the export of corn, hemp, flax, honey, wax, and other products of the surrounding country, conveyed by the Wilia and Niemen to Memel and Kőnigsberg.

The *Government of Wilna* contains 25,000 square miles and 1,350,000 inhabitants. It is a plain, with some slight elevations, woods, morasses and lakes. In general, the soil is fertile, producing much grain, flax and hemp. The manufactures are unimportant. The inhabitants are Lithuanians, Lettes, Poles, Jews, Greeks, Tatars, Russians and Germans.

Wilson, Richard, an English landscape painter, was born at Pineges, in Montgomeryshire, in 1714. After receiving a classical education, he was sent to London, and placed as a pupil with an obscure portrait painter. On leaving his master, he first practised in the same branch of his profession in London, but with no great success. At length he went to Italy, where he occasionally exercised his talents in studies of landscape; and at Venice meeting with Zuccarelli, that artist persuaded him to devote himself wholly to the cultivation of that department of the art in which he attained so much excellence. After staying some time at Rome and Naples, where he acquired great reputation, he returned to England in 1755, and settled in the metropolis. He had for a while much employment; but he was at length doomed to undergo indifference and neglect, and was reduced to solicit the office of librarian to the royal academy, of which he was one of the brightest ornaments. He died in May, 1782. His taste was exquisite; and whatever came from his easel bore the stamp of elegance and truth. If posthumous fame could compensate for contemporary neglect, the fate of Wilson might be considered as fortunate; for he has been ranked among the greatest artists of modern times.

Wilson, James, a signer of the Declaration of Independence, was born in Scotland about the year 1742. His father was a respectable farmer. He studied successively at Glasgow, St. Andrews and Edinburgh, and then left Scotland for America. He arrived, in 1766, in Philadelphia, where he was first employed as a tutor in the Philadelphia college and academy, in which capacity he acquired a high reputation as a classical scholar. In a few months, however, he relinquished that occupation, and commenced the study of the law in the office of the celebrated John Dickinson. At the expiration of two years, he was admitted to the bar, and began to practise, first at Reading, and then at Carlisle. From the latter place he removed to Annapolis, and, in 1778, returned to Philadelphia, where he continued to reside during the rest of his life. He was elected, in 1775, a member of congress, and took his seat on the 10th of May. He was a uniform advocate of the declaration of independence, though he may have thought, perhaps, that the measure was brought forward prematurely: he voted in favor of it, as well on the 1st of July, in opposition to the majority of his colleagues from Pennsylvania, as on the 4th, in conjunction with the majority. In 1777, he was superseded in congress, through the influence of party spirit; but, in 1782, he was again honored with a seat. A few months previously, he had been appointed, by the president and supreme executive council, a counsellor and agent for Pennsylvania, in the controversy between that state and Connecticut, relating to certain lands within the charter boundary of the former, and which were claimed by the latter as included within her charter. The decision was in favor of Pennsylvania. In 1779, he received the appointment of advocate-general for the French government in the U. States, an office the duties of which were both arduous and delicate. He resigned it in 1781, in consequence of difficulties respecting the mode of remuneration. He continued, however, to give advice in such cases as were laid before him by the ministers and consuls of France, until 1783, when the French transmitted to him a present of ten thousand livres. In 1787, Mr. Wilson was a member of the convention which framed the constitution of the U. States, and was one of the committee who reported the draught. In the state convention of Pennsylvania, he was principally efficient in causing the constitution to be adopted. He was subsequently a member of the convention which changed the constitution of Pennsylvania, to render it conformable to that of the U. States, and, being one of the committee appointed to prepare, was intrusted with the duty of making the draught of the necessary form. In 1789, he was appointed, by general Washington, a judge of the supreme court of the U. States; and, whilst on a circuit in North Carolina, in the discharge of his functions as such, he died at Edenton, 28th of August, 1798, aged about fifty-six years. As a lawyer and judge, Mr. Wilson was eminent for talent and integrity. In private life, he was courteous, kind and hospitable. His political and legal disquisitions are extant in three volumes, and much esteemed.

Wilson, Alexander, was born at Paisley, in Scotland, in 1766. His parents were industrious people of an humble rank in life; and in his thirteenth year, young Wilson was bound apprentice to a weaver. After serving an apprenticeship of three years, and working as a journeyman weaver for about four years, during which period he had cultivated his mind by his own unaided exertions, and had already given indications of poetical talent, disgusted with the confined and tedious nature of his employment, he abandoned the loom, and adopted the life of a wandering pedler. Three years were spent in this mode of life; and, in 1789, having already prepared a volume of poems for publication, he offered his muslins, and solicited subscriptions for his work at the same time. Unsuccessful in the latter object, and tired of a pedler's life, he once more returned to the loom. In 1791, he published a poem under the title of the Laurel Disputed, on the comparative merits of Allan Ramsay and Robert Fergusson, and, in 1792, his Watty and Meg, which, having appeared anonymously, was ascribed to Burns. Having soon after written a severe satire upon a person in Paisley, Wilson was thrown into prison: he was likewise looked upon with suspicion as a member of the society of the Friends of the People, who hailed the French revolution as a new morning of liberty; and, impelled by these circumstances, he determined to come out to the U. States. He arrived at Newcastle in 1794, and again resumed his former trade, but, after a while, turned school-master, acting in this capacity in several places in Pennsylvania. It was while thus engaged at Kingsess, near Philadelphia, that he became acquainted with Mr. Bartram, the naturalist, and Mr. Lawson, an engraver, whose tastes and instructions proved the occasion of calling out his own talents. He had already undertaken some long excursions for making ornithological researches, and devoted much time to the study, when he was engaged, in 1806, to assist in editing the American edition of Rees's Cyclopædia, and now began to prepare for the publication of his work on American ornithology. The first volume of this work was published in 1808, and the seventh in 1813, in which year the author died. The interval had been passed in exploring different parts of the country, for the purpose of extending his observations, collecting specimens, and watching the habits of birds in their native haunts. The eighth and ninth volumes of this great work were published in 1814, under the care of Mr. Ord, who had been the companion of several of his exploring expeditions. The ninth volume contains a notice of Wilson, by the editor. Three supplementary volumes, containing American birds not described by Wilson, have been published by Charles Lucien Bonaparte (fol., 1825—1828).

Wilson, sir Robert Thomas, a son of an eminent painter, was born in London, in the year 1777. After receiving an excellent education, first at Westminster, and next at Winchester, he joined (1794) the army of the duke of York, in Flanders, as a volunteer, and before the end of three years, he became a captain. He was present in all the encounters which took place at that time, while the English remained on the continent. On the 24th of April, 1794, a few days after he received his first commission, he was one of eight officers, with a small detachment of dragoons, who, by a daring attack on a formidable division of the enemy, had the good fortune to prevent Francis, emperor of Germany, from being taken prisoner. For this service, the officers were first rewarded with a medal, and subsequently with the order of Maria Theresa. During the rebellion in Ireland, he served on the staff as aid-de-camp to major-general St. John, and, in 1799, went to Holland, and bore a part in all the actions which took place there. In 1800, he succeeded to a majority in Hompesch's mounted riflemen; and in the following year, he was employed in Egypt, and was present at the different actions which took place in that country. (See *Egypt, Campaign in.*) In 1802, after having previously given to the press a translation of Regnier's State of Egypt, he published a Historical Account of the British Expedition to Egypt, with some Important Facts relative to General Bonaparte (4to.). In the compilation of this volume, he was assisted by his brother, and by Mr. Roworth, a printer, who having copied into it some exaggerated Turkish stories, which had been printed in an obscure pamphlet at Constantinople, the book so accorded with the party-prejudices of the day, that it obtained an unprecedented circulation, and, being honored with royal patronage, became an object of public complaint from the government of France. No satisfaction being obtained, the first consul caused the counter-report of colonel Sebastiani to be published, which led to complaints from the English government; and the controversy engendered so much ill-blood as to be one of the causes of the subsequent war. His next literary production came out in 1804, with the title of an Inquiry into the present State of the Military Force of the British Empire, with a View to its Reorganization, in which he expresses his decided reprobation of the practice of corporal punishment. Sir Robert Wilson has the merit of having been one of the first to call the attention of the public to that flagrant military abuse. After having held the situation of inspecting field-officer of yeomanry in the western counties, he was once more taken into active service, and assisted at the capture of the cape of Good Hope. In 1806, he accompanied lord Hutchinson to the continent, on a secret mission to Russia, and was present in all the battles fought by the allied armies, from the battle of Pultusk to that of Friedland. After the peace of Tilsit, he was received at Petersburg, by the emperor Alexander, with marks of distinguished favor. Of the contest between France and the allied powers, he, in 1811, published a narrative, with the title of an Account of the Campaigns in Poland in 1806 and 1807, with Remarks on the Character and Composition of the Russian Army (4to.). In 1808, he was despatched to Portugal, where he formed the royal Lusitanian legion, at the head of which he was engaged in various encounters. At the action of Banos, though his corps was eventually routed, he behaved with distinguished bravery. In 1812, he was sent to Russia, as British military correspondent with the allied armies, and was in the principal actions which took place till the close of the war. At the battle of Lützen, he stormed the village of Gross Görschen, and remained master of it at the close of the day. After the peace, he visited Paris; and the part which he took in rescuing Lavalette from his persecutors is well known, and remembered to his honor. (See *Lavalette.*) He was censured in the general orders issued by the duke of York, but was applauded by the unanimous voice of the world. In 1817, sir Robert published a Sketch of the Military and Political Power of Russia. This brought upon him a calumnious attack from the Quarterly Review, to which he replied with spirit. Sir Robert Wilson next went to Colombia, for the purpose of serving under Bolivar, but soon after returned to England, and, at the general election in 1818, was elected one of the members for the borough of Southwark. In parliament, he voted for reform and retrenchment, and warmly espoused the cause of the injured queen Caroline. This was an inexpiable crime in the eyes of the government, and an opportunity was soon found, or rather made, to punish him. His exertions to prevent bloodshed, at the queen's funeral, having been misrepresented, the sovereign exercised the unusual prerogative of dismissing him from the army; and he was thus deprived of several thousand pounds, which his commissions had cost him. A public subscription was entered into, which amounted to several thousands, to indemnify him for his losses. Having subsequently made a visit to Paris, he was ordered by the police to quit France within three days. On the declaration of war, by France, against Spain, in 1823, sir Robert, notwithstanding British subjects were prohibited taking part with either of the belligerents, hastened to the Peninsula to join the constitutional cause. He received a post in the army of the cortes, was wounded at Corunna, and, after having witnessed the downfall of his party (see *Spain*), fled to Lisbon, where, however, he was forbidden to land, and, retiring to Cadiz, remained there till the capture of the city by the French. In consequence of his efforts in favor of the constitutional or revolutionary cause in Spain, the kings of Portugal and Prussia, and the emperors of Russia and Austria, deprived him of the orders which they had bestowed on him for former services. In 1826, he was reëlected member of parliament by Southwark. Having opposed the passage of the reform bill, sir Robert Wilson was thrown out in the elections of April, 1831.

Wilson, John, professor of moral philosophy in the university of Edinburgh, was born at Paisley, in Scotland, in 1789. He inherited a considerable sum from his father, but soon lost it in a mercantile speculation. While quite young, he ran away from his home, and served at sea as a ship-boy; and he subsequently had serious intentions of penetrating to Timbuctoo, but was prevailed upon by his friends to give up so wild a project. He was educated at Magdalen college, Oxford, and, while there, obtained, in 1806, sir Roger Newdigate's prize for the best poem on a given theme. The subject of his poem was a recommendation of the study of ancient architecture, sculpture and painting. While at Oxford, Wilson was distinguished as an excellent Greek scholar, and a powerful pugilist. On quitting the university, he went to reside on his estate near the lake of Windermere, in Westmoreland. On the death of doctor Brown, the successor of Dugald Stewart in the university of Edinburgh, Wilson became the candidate to fill the vacant office. His election was violently opposed; but he finally succeeded in obtaining the chair. His bearing towards his pupils is most engaging; his lectures always talented and splendid, and not unfrequently adorned by bursts of impassioned eloquence. Wilson's principal prose works are Lights and Shadows of Scottish Life; Trials of Margaret Lynsday; the Foresters, &c. The titles of his chief poems are City of the Plague; the Isle of Palms; and An Evening in Furness Abbey. As a poet, he belongs to the lake school, and possesses considerable descriptive and imaginative powers. Professor Wilson is likewise understood to be the editor of Blackwood's Edinburgh Magazine, an extremely clever, but virulent and scurrilous publication, the ability manifested in which is but a poor set-off for its fustian, prejudice, flippancy and malignity.

Winchester; an ancient city of England, in Hampshire, near the river Itchin. It is about half a mile long, from east to west, and contains nine parish churches. It was known in the time of the Romans, who made it one of their military stations. During the reign of Egbert, it became the metropolis of the kingdom, but was soon rivalled by London. Its commerce was also obstructed by various accidents; and, in the reign of Henry VIII, it received a blow, in the dissolution of monasteries and the destruction of religious houses; after which, Winchester contained scarcely any thing more than a shadow of its former grandeur. In the reign of Charles I, the city and castle of Winchester, which remained faithful to that monarch, were compelled to surrender to Cromwell, who destroyed the works of the castle, together with the fortifications of the city. The cathedral of Winchester is one of most interesting buildings in England. The original structure, built by Saxon kings, is entirely destroyed. In the eleventh century, the cathedral was rebuilt by bishop Walkelin. The next improvement was undertaken by William de Edyngton, treasurer to Edward III, and was finished by bishop Wykeham in 1394: the eastern part was rebuilt at the beginning of the sixteenth century. The length of the cathedral is 556 feet. Next to the cathedral, in interest and antiquity, stands the college of St. Mary's, founded by Wykeham in 1387, as a nursery for his New College at Oxford. The foundation provides for a warden, ten fellows, seventy scholars, one master, three chaplains, besides many subordinate members. The buildings consist of two quadrangles, a cloister, library, and a large modern school-room. The windows of the chapel are filled with stained glass; and over the altar is a picture (by Le Moine) of the Salutation. The tower, built in the fifteenth century, is remarkable for its symmetry. Over the school-room door is a bronze statue of Wykeham, cast by Cibber (1692). The ecclesiastical buildings in this city were formerly numerous, the churches and chapels alone amounting to upwards of ninety, and several having colleges and monasteries attached to them. Scarcely twelve of them now remain. Here are several meeting-houses for dissenters. Near the college are the ruins of the celebrated episcopal residence, called Wolvesey castle, destroyed by Cromwell, in 1646. Winchester castle, built by William the Conqueror, occupied the spot where the palace, erected by Charles II, now stands, and which, during the war, was converted into a barrack. The area of the castle was about 850 feet in length, north and south, and 250 in breadth. The chapel belonging to the castle has been converted into a county hall. At the east end is suspended the curiosity called *Arthur's round table*, which tradition has attributed to king Arthur. Near the cathedral is the Widow's college, founded by bishop Morley, for the relicts of deceased clergymen. The city contains two almshouses, and a great number of charitable bequests belong to it. In the town-hall are the city archives, the original Winchester bushel, given by king Edgar, with other measures, both for quantity and length, fixed as standards by succeeding princes, and various curious memorials of antiquity. At the west end of the town is an obelisk, having an inscription commemorative of the calamities occasioned by the plague, in 941, 1348 and 1668. Two members are sent to parliament. Winchester has very little trade. An ancient wool-combing manufactory still exists in it; and, of late years, the silk manufacture has been introduced. There is a navigable river or canal to Southampton. All the public business of Hampshire is, however, transacted here. Its cathedral and its college ensure to it the residence, also, of a considerable number of the superior clergy, with their families. Population, 9212; 11½ miles N. N. E. from Southampton, and 63 S. W. from London.

Winchester Bushel; the English standard until 1826, when the imperial standard bushel was introduced. (See *Measures*.) The Winchester bushel is eighteen and a half inches wide and eight inches deep, and contains 2150.42 cubic inches, while the imperial standard bushel contains 2218.40 cubic inches.—To convert Winchester bushels into imperial bushels, multiply the Winchester measure by 31, and divide by 32. The name of the old measure was derived from the circumstance that the standard measure was kept at Winchester. (q. v.)

Winckel, Theresa Emilia Henrietta, an artist at Dresden, born in 1784, celebrated for her copies of the productions of the best old masters, formed herself in the gallery of Dresden. (q. v.) In 1806, she visited Paris with her mother, to study the works of art accumulated there, and remained in that city two years and a half. David said that no one could equal her in copying Correggio. Her mother having lost her fortune, the daughter employed her talents for music and painting for their common support. Several of her paintings are used as altar pieces. Her letters from Paris have been published, and she has furnished contributions to periodicals, to Hasse's Pocket Encyclopædia, and to the *Conversations-Lexicon*.

Winckelmann, John Joachim. This scholar, who has done so much for the criticism and history of art, and the study of antiques, was born at Stendal, in Altmark, Dec. 9, 1717, and was the son of a shoemaker. Extreme poverty could not suppress his early-awakened love of study. The school-master of his native place soon became attached to him, and took him into his family. After having made considerable proficiency in Greek and Latin, he went, in 1735, to a gymnasium at Berlin, and thence on foot to Hamburg, in order to purchase some ancient classics, with money begged on the way. In 1738, he entered the university of Halle, where he lived for two years on a small stipend, and the contributions of others; but, as ancient literature and the belles-lettres interested him more than theology, he neglected the lectures, but assiduously frequented the libraries, and occupied himself with the ancients. After having been a private tutor and an usher for a number of years, during which he pursued his studies with indefatigable zeal, he applied, in 1748, to the minister, count von Bünau, of Nöthenitz, near Dresden, and offered his services as a librarian. The count had already a librarian, but expressed his willingness to appoint him secretary of the library, with a salary of eighty rix-dollars. He accepted the offer, and lived some years employed partly in his private studies, partly in labor for the count. The proximity of Dresden, with its rich treasures of art, and the acquaintance of some artists, awakened in him a love of the arts. To visit Italy, the native country and the home of the arts, was now the great object of his wishes. At length, father Rauch, the confessor of the king of Poland, enabled him to live in Rome by a small pension. In 1744, he formally embraced the Catholic religion, and left the service of count Bünau; but, before going to Rome, he remained for a time in Dresden, devoted to the study of the arts. In the autumn of 1755, he set out for Rome with a pension from the king of 200 rix-dollars for two years. There he soon found friends and patrons, and had an audience of Benedict XIV, who received him graciously, and promised him his protection. Winckelmann now devoted himself to the study of the works of ancient and modern art. In the spring of 1758, he visited Naples, where he became acquainted with the most distinguished men, and obtained access to the antiquities of Portici, Herculaneum and Pompeii. After an absence of ten weeks, he returned to Rome. In September, 1758, at the repeated invitation of count Munzel Stosch, who had inherited from his uncle one of the richest and most beautiful cabinets of gems, he paid a visit to Florence, where he spent nine months in arranging and making a catalogue of that collection. This catalogue appeared at Florence, under the title *Description des Pierres gravées du feu Baron de Stosch.* About this time, he accepted the situation of librarian, and superintendent of antiquities to cardinal Albani, who gave him the use of his house, and a salary of 120 scudi. In the summer of 1760, he finished the *Anmerkungen über die Baukunst der Alten*, which was published two years after in Germany. In 1762, Winckelmann, in company with count Brühl, again visited Naples and its remarkable environs, and soon after gave the discoveries and observations made there to the public, in his Letter to Count Brühl respecting the Discoveries made at Herculaneum. Five years afterwards, he published his *Monumenti antichi inediti*, in the Italian language, and for the benefit of the Italians. In 1763, he published a small essay On the Perception of the Beautiful. In the same year, he was made superintendent of all the antiquities in and about Rome, with a monthly salary of 12—15 scudi. In the beginning of 1764, appeared his principal work, *Geschichte der Kunst*. In the same spring, he made a third journey to Naples, the results of which he published in the *Nachrichten von der neuesten Herculanischen Entdeckungen.* In 1767, he published Notes to his History of Art. In April, 1768, he set out on a journey to Germany. He arrived at Vienna May 12, and was received with great honor by prince Kaunitz and others, and was presented, at Schönbrunn, to the empress Maria Theresa, who received him with distinction, and bestowed upon him presents of value; and, in the beginning of June, he departed for Trieste. There he was joined by an Italian, named Francesco Arcangeli, a villain, who had been, a short time before, condemned to death in Vienna, but had been pardoned, and banished from the country. His obsequiousness won the confidence of the unsuspecting Winckelmann, who thoughtlessly showed him his gold medals, and other articles of value. Arcangeli undertook the care of the affairs of the journey, while Winckelmann remained in the inn. June 8, as he sat writing at table, the Italian entered his chamber to announce his sudden departure, and to take leave. He asked to see once more the gold medals; and, while Winckelmann was kneeling before the box, about to take them out, the Italian threw a noose around his neck, and inflicted five mortal stabs in the belly of the unfortunate man, and then fled, without taking any thing. He was subsequently apprehended, and broken on the wheel. Winckelmann expired in a few hours, having made his will, in which he appointed cardinal Albani his sole heir. His manuscript of the second edition of the *Geschichte der Kunst*, which he carried about him, came into the possession of the imperial academy of fine arts at Vienna, which, in 1776, caused an edition to be published from it. The great merit of Winckelmann consists in his elucidation of the principles of art, and his exhibition of the works of art in their true character and connexion. His treatises, moreover, contain a great mass of historical illustrations. With the exception of the *Monumenti inediti*, the *Description des Pierres gravées*, and the various collections of letters, all his works may be found in the edition begun by Fernow, and finished by Meyer and Schulze (Dresden, 1808—17, 7 vols.)—See Göthe's excellent treatise *Winckelmann und sein Jahrhundert.* A supplement to the biographical and literary notices of Winckelmann has been published by Gurlitt (Hamburg, 1820).

Winckelried. (See *Winkelried.*)

Wind; a sensible current in the atmosphere. The motions of the atmosphere are subject, in some degree, to the same laws as those of the denser fluids. If we remove a portion of water in a large reservoir, we see the surrounding water flow in to restore the equilibrium; and, if we impel in any direction a certain portion, an equal quantity moves in a contrary direction, from the same cause; or if a portion, being rarefied by heat, or condensed by cold, ascends in the one instance and descends in the other, a counter-current is the visible and natural result; and similar effects are found to follow the same causes in the atmospheric fluid; thus no wind can blow without a counter or opposite current; nor can any wind arise without a previous derangement of the general equilibrium, the general causes of which may be stated as follows: 1. The ascent of the air over certain tracts heated by the sun; 2. evaporation, causing an actual increase in the volume of the atmosphere; 3. rain, snow, &c., causing an actual decrease in its volume, by the destruction of the vapor. In the Philosophical Transactions of the Royal Society of London (vol. 51st), there is a table of the different velocities and forces of winds, drawn from a considerable number of facts and experiments, which give the following results:—

Velocity of the Wind.		Perpendicular Force on one square Foot in Avoirdupois Pounds and Parts.	
Miles per Hour.	Feet per Second.		
1	1.47	.005	Hardly perceptible.
2	2.93	.020	Just perceptible.
3	4.4	.044	
4	5.87	.079	Gently pleasant.
5	7.33	.123	
10	14.67	.492	Pleasant, brisk.
15	22.	1.107	
20	29.34	1.968	Very brisk.
25	36.67	3.075	
30	44.01	4.429	High wind.
35	51.34	6.027	
40	58.68	7.873	Very high wind.
45	66.01	9.963	
50	73.35	12.300	Storm or tempest.
60	88.02	17.715	Great storm.
80	117.36	31.490	Hurricane.
100	146.7	49.200	Hurricane that tears up trees, and carries buildings before it.

Currents thus produced may be permanent and general, extending over a large portion of the globe; periodical, as in the Indian ocean, or variable and occasional, or, at least, uncertain, as the winds in temperate climates. General or permanent winds blow always nearly in the same direction, and are called *trade-winds.* (q. v.) On the north of the equator, their direction is from the north-east (varying at times a point or two of the compass each way): on the south of the equator, they proceed from the south-east. The origin of them is this: The powerful heat of the torrid zone rarefies, or makes lighter, the air of that region: the air, in consequence of this rarefaction, rises, and, to supply its place, a colder atmosphere from each of the temperate zones moves towards the equator. But (as in the case of the polar currents in the ocean) these north and south winds pass from regions where the rotatory motion of the earth's surface is less to those where it is greater. Unable at once to acquire this new velocity, they are left behind, and, instead of being north and south winds, as they would be if the earth's surface did not turn round, they become north-east and south-east winds. The space included between the second and fifth degrees of north latitude is the internal boundary of the two winds; and this space experiences calms, frequently interrupted, however, by violent storms. The reason why it is situated to the north of, instead of exactly at, the equator, seems to be, that the northern hemisphere is warmer than the southern; for, since the trade-winds are the result of the continual ascent of heated air in the equatorial parts, their internal boundary will be where the principal ascent is going on, that is, where the annual temperature is the highest, which, on account of the above-mentioned inequality of temperature in the two hemispheres, will not be at the equator, but somewhat to the north of it. The external limits of the trade-winds are, at a medium, in about the thirtieth degrees of north and south latitude respectively; but each limit, as the sun approaches the neighboring tropic, declines farther from the equator. The position of the sun has an influence, also, on their strength and direction; for, when that luminary is near the tropic of Cancer, the south-east wind becomes gradually more southerly, and stronger, and the north-east weaker, and more easterly. The effect is reversed when he gets towards the tropic of Capricorn. The trade-winds would blow regularly round the whole globe within the distance of about thirty or forty degrees from the equator each way, if the space within those limits were all covered with water; but the uneven surface and unequal temperature of the land divert and derange them. It is on this account that the trade-winds are constantly experienced only over the open ocean. The larger the expanse of ocean over which they range, the more steadily they blow; thus, in the Pacific, they are commonly more steady than in the Atlantic ocean, and in the South than in the North Atlantic. In sailing from the Canaries to Cumana, on the north coast of South America, it is hardly necessary to touch the sails of the vessel. The voyage across the Pacific, from Acapulco, on the west coast of Mexica, to the Philippine islands, is performed with equal facility; and, if there were a channel through the isthmus of Panama, a westward passage from the Atlantic to China would be more speedy and safe than the usual navigation thither round the cape of Good Hope. The only interruption to the evenness of this voyage would be in the Caribbean sea and the gulf of Mexico, where the trade-wind blows impetuously, and is sometimes interrupted by westerly winds. It would not be possible, however, to return by the same route, because, in sailing east, way must be made to the northward, in order to get beyond the region of the trade into that of the variable winds. Both in the Atlantic and in the Pacific ocean, the current of the trade-winds becomes broader, and more directly east in its course, as it advances from one side to the other of those extensive basins. On the west coast of Africa, owing to the rarefaction which the air undergoes over that continent, the wind is mostly turned towards the shore: from cape Bojador to cape Verde, it is generally north-west, and thence to the island of St. Thomas, under the equator, it bends gradually, first to the west, and then to the south-west. Along the coasts of Chile and Peru, a south wind prevails. These are two instances of the interruption which the trade-winds experience in the neighborhood of large masses of land. In the Indian ocean, the south-east trade-wind prevails between 28° and 10° of south latitude, from within a few degrees of the east side of Madagascar, nearly to the coast of New Holland; but, from the tenth degree of south latitude to the northern shores of that ocean, the uniformity of the tropical movements of the atmosphere is destroyed by the monsoons (q. v.), which belong to the class of periodical winds. These blow half the year from one quarter, and the other half from the opposite direction. When they shift, variable winds and violent storms prevail for a time, which render it dangerous to put to sea. They, of course, suffer partial changes in particular places, owing to the form and position of the lands, and to other circumstances; but it will be sufficient to give their general limits and directions. Northward from the third degree of south latitude, a south-west wind blows from April to October; from October to April, a north-east. These monsoons extend over the China sea; but here they incline more to the direction of north and south. Between the third and tenth degrees of south latitude, a north-west wind blows from October to April, and a south-east during the other six months of the year: the former is seldom steady in the open sea; but, in December and January, it sometimes extends northward a degree or two beyond the equator. These two monsoons have the greatest strength and regularity in the Java sea, and thence eastward towards New Guinea. The facts above exhibited may be thus summed up: From April to October a south-west wind prevails north of the equator; southward of this, a south-east wind: from October to April, a north-east wind north of the equator, and a north-west between the equator and 10° of south latitude; south of this, the usual trade-wind, which is in motion through the whole year. In attempting to account for these movements of the atmosphere over the Indian ocean, the first thing which strikes us is, that the north-east and south-east monsoons, which are found the one on the north and the other on the south side of the equator, are nothing more than the trade-winds blowing for six months, and then succeeded, for the remainder of the year, by winds directly opposite. It is also to be noticed that the south-west monsoon in the northern, and the north-west monsoon in the southern, hemisphere, each prevails while the sun is perpendicular to their respective regions. They are, therefore, connected with the immediate presence of that luminary. If the Indian ocean were not bounded, as it is, by land on the north, the trade-winds would blow over it (at least in the central parts) as they do in the Atlantic and Pacific oceans. But it is well known that water, owing to its transparency, is very little warmed by the sun's rays, whereas the land is powerfully heated by them; consequently, when the sun is between the equator and the tropic of Cancer, India, Siam, and the adjacent countries, become much hotter than the ocean; the air over them is rarefied, and ascends: colder air then rushes in from the Indian ocean, and a south-west wind is produced. When the sun, however, has crossed to the south of the equator, these countries become gradually cool, and the north-east trade-wind resumes its course. At the same time, the north-west monsoon commences in the southern hemisphere, in consequence of the air over New Holland being rarefied by the presence of the sun. The monsoons in the Red sea blow in the direction of the shores; and a similar effect is observed in the Mozambique channel, between Africa and Madagascar, where these winds follow the line of the channel. On the coast of Brazil, between cape St. Augustine and the island of St. Catharine, and in the bay of Panama, on the west of the isthmus of that name, periodical winds occur somewhat similar to the monsoons of Asia. The land and sea-breezes, which are common on coasts and islands situated between the tropics, are another kind of periodical winds. During the day, the air over the land is strongly heated by the sun, and a cool breeze sets in from the sea; but, in the night, the atmosphere over the land is cooled, while the sea, and, consequently, the air over it, retains a temperature nearly even at all times; accordingly, after sunset, a land-breeze blows off the shore. The sea-breeze generally sets in about ten in the forenoon, and lasts till six in the evening. At seven, the land-breeze begins, and continues till eight in the morning, when it dies away. These alternate breezes are, perhaps, felt more powerfully on the coast of Malabar than elsewhere. Their effect there extends to a distance of twenty leagues from the land. During summer, the sea-breeze is very perceptible on the coasts of the Mediterranean, and sometimes even as far north as Norway. We thus perceive that, within the limits of from twenty-eight to thirty degrees on each side of the equator, the movements of the atmosphere are carried on with great regularity; but, beyond these limits, the winds are extremely variable and uncertain, and the observations made have not yet led to any satisfactory theory by which to explain them. It appears, however, that, beyond the region of the trade-winds, the most frequent movements of the atmosphere are from the south-west in the north temperate zone, and from the north-west in the south temperate zone. This remark must be limited to winds blowing over the ocean, and in maritime countries; because those in the interior of continents are influenced by a variety of circumstances, among which the height and position of chains of mountains are not the least important. These south-west and north-west winds of the temperate zones are most probably occasioned in the following manner: In the torrid zone, there is a continual ascent of air, which, after rising, must spread itself to the north and south in an opposite direction to the trade-winds below. These upper currents, becoming cooled above, at last descend and mix themselves with the lower air: part of them may perhaps fall again into the trade-winds; and the remainder, pursuing its course towards the poles, occasion the north-west and south-west winds of which we have been speaking. It has also been conjectured that these winds may frequently be caused by a decomposition of the atmosphere towards the poles, from part of the air being at times converted into water. (See *Hurricane*, *Whirlwinds*, *Harmattan*, *Simoom*, &c.) The following facts, illustrative of the course of the winds in the North Atlantic, are of practical interest. They are taken from a statement of passages made from 1818 to 1827, embracing a period of ten years, and comprising 188 complete voyages.

The passages from New York to Liverpool, during this period, averaged each	24 days.
Those from Liverpool to New York, ...	38 "
Shortest passage from New York to Liverpool, in December, . .	16 "
Longest, in December, ...	37 "
Shortest passages from Liverpool to New York, April and February, ...	22 "
Longest passage, December to February, ...	71 "

These passages are reckoned from city to city.

The passages from N. York averaged in

January, .	24 days.	July, . . .	24 days.
February,	24 "	August, . .	23 "
March, . .	23 "	September,	25 "
April, . . .	24 "	October, .	24 "
May, . . .	24 "	November,	22 "
June, . . .	25 "	December,	24 "

Passages from Liverpool averaged in

January, .	42 days.	July, . . .	40 days.
February,	40 "	August, . .	36 "
March, . .	36 "	September,	33 "
April, . . .	34 "	October, .	37 "
May, . . .	35 "	November,	38 "
June, . . .	38 "	December,	48 "

See Romney's *Tableau des Vents*, &c. (Paris, 1806, 2 vols.), and the *American Philosophical Transactions* (New Series, vol. ii.).

WIND INSTRUMENTS. (See *Instruments*.)

WINDMILLS. Pomponius Sabinus or Lætus, a writer of the fifteenth century, says that windmills were in use among the Romans; but the silence of Vitruvius and Seneca, who have spoken of the advantages of wind, have led many writers to doubt the truth of this statement. Some authors have maintained that they were used in France in the sixth century, while others are of opinion that they were brought into Europe by the crusaders; and Gibbon (ch. 61) says that they were first invented in the dry country of Asia Minor. It is certain that they were in use in the western countries of Europe in the twelfth century. (See Beckmann's *History of Inventions*, vol. i.) When wind is employed as the first mover of machinery, it may be applied in two ways—1. by receiving it upon sails which are nearly vertical, and which give motion to an axis nearly horizontal, in which case the machine is called a *vertical windmill*, because the sails move in a vertical plane; and, 2. by receiving it upon vertical sails which move in a horizontal plane, and give motion to a vertical axis, in which case it is called a *horizontal windmill*. As a horizontal windmill consists of vertical sails moving horizontally round a vertical arbor or windshaft, no motion would arise on exposing it to the action of the wind, as the effect of the wind upon the sails on one side would be counterbalanced by its action upon the corresponding sails on the opposite side. Hence it is necessary either to screen the sails on one side from the action of the wind, or to construct the sails in such a manner that, when they return against the wind, they present only their edge to its action. The method of screening the returning sails from the wind is adopted in Tartary and some provinces of Spain, and is the most simple that has been tried. When the screen is not used, the sails may be fixed like float-boards, with hinges, on the circumference of a large drum or cylinder, so that, when they are to receive the action of the wind, they stand at right angles to the drum, and when they return against the wind, they fold down upon its circumference. Other ingenious methods have also been devised for bringing back the sails against the wind. In the vertical windmill, on the other hand, the arms which carry the sails revolve in a plane facing the wind. In this arrangement, if the sails were in the same plane with the arms, the wind would fall perpendicularly upon them, and merely press the arms against the building, perpendicular to the plane in which they are designed to move. If, on the other hand, the sails were perpendicular to the plane in which the arms move, their edges would be presented to the wind, and would, therefore, offer no resistance, and there would be no motion. In order to make the arms revolve, the sails must, therefore, be placed in some direction intermediate between those of the wind and the plane in which the arms revolve. In determining the angle at which the planes of the sails should be inclined to the axis of motion, or the direction of the wind, it is necessary to consider the sail in motion; and the neglect of this element in the calculation has led to very great errors in theoretical calculations. The sail being in motion, the velocities of the sail and the wind must both be taken into account; for, if the sail moved before the wind with a speed equal to that of the wind itself, no effect would be produced. The effect will depend on the difference of the velocities, that being the velocity with which the wind strikes the sail. Now, as the obliquity of the sail to the wind should depend on the force with which the wind acts upon it, and as those parts of the sail which are nearer to the centre of motion move more slowly than those which are more remote, it follows that the position of the sail should vary at different distances from the centre of rotation. From the experiments of Mr. Smeaton on this subject (Philosophical Transactions, 1759), it appears that the following positions are the best. Suppose the radius to be divided into six equal parts, and call the first part, beginning from the centre, one, the second two, and so on, the extreme part being six:—

No.	Angle with the Axis.	Angle with the Plane of Motion, or Angle of Weather.
1	72°	18°
2	71	19
3	72	18
4	74	16
5	77½	12½
6	83	7

As it is necessary that a windmill should face the wind from whatever point it blows, the whole machine, or a part of it, must be capable of turning horizontally. Sometimes the whole mill is made to turn upon a strong vertical post, and is therefore called a *post mill;* but, more commonly, the roof or head only revolves, carrying with it the windwheel and its shaft, the weight being supported on friction rollers. In order that the wind itself may regulate the position of the mill, a large vane, or weathercock, is placed on the side which is opposite the sails, thus turning them always to the wind. But in large mills the motion is regulated by a small supplementary windwheel, or pair of sails, occupying the place of the vane, and situated at right angles with the principal windwheel. When the windmill is in its proper position, with its shaft parallel to the wind, the supplementary sails do not turn. But when the wind changes, they are immediately brought into action, and, by turning a series of wheelwork, they gradually bring round the head to its proper position.—*Adjustment of Sails.* On account of the inconstant nature of the motion of the wind, it is necessary to have some provision for accommodating the resistance of the sails to the degree of violence with which the wind blows. This is commonly done by clothing and unclothing the sails; that is, by covering, with canvass or thin boards, a greater or smaller portion of the frame of the sails, according to the force of the wind at different times. A method has been devised for producing the same effect, by altering the obliquity of the sails; and windmills have been so made as to regulate their own adjustment by the force of the wind. If we suppose a windmill, or windwheel, to consist of four arms, and that the sails were connected to these arms at one edge by means of springs, the yielding of these springs would allow the sails to turn back when the wind should blow with violence; and their elasticity would bring them up to the wind whenever its force abated. This effect has been produced by a weight acting on the sails through a series of levers. A loose iron rod, passing through the centre of the axle of the windwheel, receives the action of the weight at one end, and communicates it to the sails at the other.

WINDPIPE (*trachea*); a cartilaginous and membranous canal, through which the air passes into the lungs. Its upper part, called the *larynx*, is composed of five cartilages, the uppermost of which, called the *epiglottis* (q. v.), closes the passage to the lungs, when a person is in the act of swallowing. The two front cartilages of the larynx, the thyroides, or Adam's apple, and the annular, which resembles a ring, may be felt directly under the skin. The various cartilages of the larynx are united to each other by elastic fibres, and are enabled, by their several muscles, to dilate or contract the passage, and perform those numerous motions which render the larynx so important as an organ of the voice; for, when the air passes directly into the trachea through a wound, it produces little or no sound. (See *Voice*.) From the larynx the canal takes the name of *trachea*, and, after extending as far down as the fourth or fifth vertebra, it divides into two branches, running to the two lobes of the lungs (q. v.), to which they are distributed by an infinite number of branches. The trachea is furnished with muscular fibres, by the contraction or relaxation of which it is enabled to shorten or lengthen itself, and also to dilate or contract the diameter of its bore. The cartilages of the trachea, by keeping it constantly open, afford a free passage to the air, which we are obliged to be incessantly respiring; and its membranous part, being capable of contraction or dilatation, enables us to receive and expel the air in a greater or less quantity, and with more or less velocity, as may be required in singing and declamation. (See *Respiration*. For the structure of the windpipe in birds, see *Ornithology*.) This membranous structure of the trachea posteriorly, seems likewise to assist in the descent of the food by preventing that impediment to its passage down the œsophagus, which might be expected if the cartilages were complete rings.

Wind Sails, in a ship, are made of the common sail-cloth, and are usually between twenty-five and thirty feet long, according to the size of the ship, and are of the form of a cone ending obtusely. When they are made use of, they are hoisted by ropes to about two thirds or more of their height, with their bases distended circularly, and their apex hanging downwards in the hatchways of the ship. Above each of these, one of the common sails is so disposed that the greatest part of the air, rushing against it, is directed into the wind sail, and conveyed into the body of the ship, to promote ventilation, &c.

Windermere; a celebrated lake in the county of Westmoreland, the most extensive sheet of water in England. It is situated at the foot of the Furness fells, and is distinguished by the variety of beautiful prospects which it exhibits. It is about fifteen miles in length from north to south, and about one broad on an average, though in many places much less.

Windham, sir William. (See *Wyndham*.)

Windham, William. (See *Appendix*.)

Window. In the most ancient eras, the windows of habitations were very small and narrow; and the same remark is true of the castles and other edifices which were constructed during the middle ages. In the painting on the Greek vase which represents Jupiter about to scale the window of Alcmena, the opening is exceedingly small. According to Seneca, those of the baths of Scipio were so small that they merited not the name, and might rather be denominated *crevices*. As the Romans improved, however, in the elegant arts, this particular was not overlooked; and both their town and country houses were decorated with numerous and ample windows. It was not customary to have them overlooking the street; and they were, in the majority of instances, confined to the interior court of the house. The ancient temples had not, generally, windows: some exceptions, however, exist to this observation. Before the use of glass became common, which was not till towards the end of the twelfth century, the windows in England seem generally to have been composed of paper, which, properly prepared with oil, forms no contemptible defence against the intrusions of the weather, and is a tolerable medium for the admission of light. In warm climates, as in the West Indies, windows are often quite open, without glass or any translucent medium to admit light while it excludes the air. In Russia, salt is used to clean windows from frost, on account of its effect in liquefying this substance. It is rubbed on the glass with a sponge. In England, windows are one of the articles subjected to taxation.

Windsor, the capital of Hants county, Nova Scotia, is situated on the Avon and the St. Croix, just above their junction, forty-five miles north of Halifax. After the Avon receives the St. Croix, it spreads into a wide frith, and afterwards flows into the basin of Minas. The rise of the Avon at Windsor is twenty feet at neap tides, and thirty at spring tides. The river at low water is only a brook. Windsor has a fine situation, and contains some of the best land in the province. Its principal commercial business arises from its gypsum. This is carried, in great quantities, to St. John's, in New Brunswick, to be shipped thence to the U States. In 1828, Windsor contained a university, an academy, a court-house, a jail, and houses of worship for Episcopalians, Roman Catholics, Methodists, Presbyterians and Baptists; and 2065 inhabitants. The charter of the university bears date May 12, 1802. The first degrees were conferred in 1807. The number of students is small. The college contains a good library and a valuable philosophical apparatus. The institution is liberally endowed. There is a collegiate school or academy subordinate to the university. This seminary is in a flourishing state.

Windsor; a post-town of Windsor county, Vermont, situated on the west bank of the Connecticut, eighteen miles south of Dartmouth college, and sixty-one south of Montpelier; lat. 43° 29′ N.; lon. 72° 30′ W.; population in 1820, 2956; in 1830, 3134. It is a pleasant town, and has considerable manufactures. It contains a state prison and many handsome houses.

Windsor, or New Windsor; a town in Berkshire, England, situated on the right bank of the Thames, which separates it from Buckinghamshire, twenty-two miles west of London; lat. 51° 28′ N.; population, 7103. It is beautifully situated on the side of a hill, and has many handsome buildings; but its chief ornament is its castle, which it owes to William the Conqueror. (See the next article.) On the south side of the town is Windsor Great Park, well stocked with deer, in which is situated the cottage of George IV. It was formerly fourteen miles in circuit, but has lately been much enlarged. The gardens are spacious and elegant. Windsor forest, fifty-six miles in circuit, was originally formed for the exercise of the chase, a favorite amusement of many of the English sovereigns. Windsor sends two members to parliament.

Windsor Castle was originally built by William the Conqueror, in the eleventh century, and has been the favorite country residence of the English kings for upwards of 700 years. It stands on a high hill, and commands a beautiful view of the Thames and the surrounding counties. Edward III rebuilt the old castle, and added St. George's chapel; and numerous changes were made by succeeding sovereigns, particularly by Charles II. In 1824, the dilapidated condition of the castle attracted the attention of parliament, and a grant of £300,000 was made for restoring it. Further grants have since been required, and the whole appearance of the building has been much improved by increasing the height of the walls, inserting larger windows, &c. The castle is divided into two wards, the Upper and the Lower, with a round tower between them, called the Middle ward; the whole covering about twelve acres, and forming a hollow square, three of the outer sides of which are surrounded by a magnificent terrace. The inner court is a connected building of three sides, the fourth being formed by the Round tower, or keep. The Lower ward contains the ecclesiastical portions of the edifice, including St. George's chapel. The Upper ward is formed by the round tower on the west, the state apartments, including St. George's hall, on the north, and a range of domestic apartments on the east and north, communicating with the state apartments. The royal apartments on the north side of the upper court are termed the Star-building, from a star and garter in the middle of the structure. Amongst those shown to the public are the king and queen's guard-chambers, containing a fine armory; the queen's presence-chamber, hung with tapestry representing the decapitation of St. Paul; the ball-room, with tapestry depicting the months of the year; the queen's bed-chamber, in which is a state bed; the beauty-room, so called from the portraits of Charles II's beauties, with which it is decorated; the king's dining-room; the king's audience-chamber, embellished with paintings by West; the king's or St. George's chapel, adorned with paintings by Verrio, and carving by Gibbon; and St. George's hall, appropriated to the order of the garter, and containing a representation of the triumph of the Black Prince. St. George's chapel, or the collegiate church of Windsor, is the largest and most elegant of the three royal chapels in England. It was founded by Edward III, but much improved by Edward IV, and afterwards by Henry VII. The interior is built in the form of an ellipsis, and the roof is supported by lofty pillars. On each side of the choir are the stalls of the sovereign and knights of the order of the garter, with their arms, banners, &c.; and in the vaults beneath are interred Henry VI, Edward IV, Henry VIII, his queen Jane Seymour, Charles I, and a daughter of queen Anne. At the east end of St. George's chapel is a royal mausoleum, formerly called Wolsey's tomb-house, from that cardinal having begun a sumptuous monument here for himself. The monument was left unfinished, and the building fell to decay, till George III formed it into a mausoleum. The remains of George III and his wife, of his sons, George IV, the duke of York and the duke of Kent, and of the princess Charlotte, with her infant son, are deposited here. Among the recent improvements before alluded to, are the new gateway, called George the Fourth's, consisting of two towers, York and Lancaster, 100 feet high; the Octagon tower, which is higher than any other part of the building, being 120 feet above the level of the terrace; a fine gallery, connecting the Octagon tower with the Star-building, &c.

Windward Islands; one of the divisions of the Caribbean islands, so called in opposition to another division of the same, called the *Leeward* islands. (q. v.) The Windward islands are Martinique, St. Lucia, St. Vincent, Grenada, Barbadoes and Tobago. The name is, however, differently applied by different writers.

Windward Passage; a name given to a course from the south-east angle of the island of Jamaica, extending 160 leagues, to the north side of Crooked island, in the Bahamas.

Wine; liquor that has become spirituous by fermentation. The invention of wine is involved in the obscurity of fable; but it must be referred to very remote times. The first portion of the fruit of the vine which had been pressed by accident or design, and allowed to remain a short time undisturbed, would be found to have assumed new and surprising properties; and the method of preserving for constant use the beverage thus obtained would soon be learned. The Egyptians attributed the invention to Osiris, the Greeks to Bacchus, and the Latins to Saturn. Wine was in common use, from an early period, among the Hebrews; but the use of it was, for a long time, forbidden in Rome, and, even at a later period, was not allowed to women. The Greeks and Romans poured out libations to the gods upon the ground or table; and the custom of drinking to the health of distinguished persons, or absent friends, also prevailed in both nations. (See *Feasts of the Ancients*.)—The vine does not thrive except between 35° and 50° of latitude; in higher latitudes, the grape seldom arrives at maturity, and the wine is weak, liable to sour, and destitute of the generous flavor which characterizes that produced in more favorable regions. In warmer climates, the saccharine matter predominates, and a complete decomposition cannot be effected. (See *Vine*.) The juice of the grape, when newly expressed, and before it has begun to ferment, is called *must*, and, in common language, *sweet wine*. It is turbid, has an agreeable and very saccharine taste, and is very laxative. When the must is pressed from the grapes, and put into a proper vessel and place, with a temperature of between 55° and 60°, a gradual fermentation ensues. Bubbles of carbonic acid gas (fixed air) rise to the surface, bringing along with them the skins, stones, and other grosser matters of the grapes, and which form a scum, or soft spongy crust, that covers the whole liquor. After a time, the crust becomes stiff, is broken in pieces by the ascending gas, and falls to the bottom of the liquor. When this takes place, if we would secure a good and generous wine, all sensible fermentation must be checked. This is done by putting the wine into close vessels, and carrying these into a cellar or other cool place. The wine produced by this first fermentation differs entirely and essentially from the juice of grapes before fermentation. Its sweet and saccharine taste is changed into one that is very different, though still agreeable and somewhat spirituous. It has not the laxative quality of must, but affects the head, and, if taken immoderately, occasions drunkenness; and, when distilled, it yields, instead of the insipid water obtained from must, genuine alcohol. When any liquor undergoes the spirituous fermentation, all its parts seem not to ferment at the same time, otherwise the fermentation would probably be very quickly completed, and the appearances would be much more striking; hence, in a liquor much disposed to fermentation, this motion is more quick and simultaneous than in another liquor less disposed. Experience has shown that a wine, the fermentation of which is very slow, is never good, and, therefore, when the weather is too cold, the fermentation is accelerated by heating the place in which the wine is made. A too hasty and violent fermentation is also hurtful, from the dissipation and loss of some of the spirit. However, we may distinguish, in the ordinary method of making wines of grapes, two periods in the fermentation, the first of which lasts during the appearance of the sensible effects above alluded to, in which the greatest number of fermentable particles ferment. After this first effort of fermentation, these effects sensibly diminish, and ought to be stopped for reasons hereafter to be mentioned. The fermentative motion of the liquor then ceases. The heterogeneous parts, that were suspended in the wines by this motion, and render it muddy, are separated, and form a sediment called *lees*, after which the wine becomes clear. But though the operation is then considered as finished, and the fermentation apparently ceases, it does not really cease; and it ought to be continued in some degree if we would have good wine. In this new wine, a part of the liquor probably remains that has not fermented, and which afterwards ferments, but so very slowly that none of the sensible effects produced in the first fermentation are here perceived. The fermentation, therefore, still continues in the wine, during a longer or shorter time, although in an imperceptible manner; and this is the second period of the spirituous fermentation, which may be called the imperceptible fermentation. The effects of this fermentation are the gradual increase of the quantity of alcohol, and of the separation of the acid salt, called *tartar*, from the wine. As the taste of tartar is harsh and disagreeable, it is evident that the wine, which, by means of the insensible fermentation, has acquired more alcohol, and has disengaged itself of the greater part of its tartar, ought to be much better and more agreeable; and for this reason chiefly old wines are universally better than new. But insensible fermentation can only ripen and meliorate the wine if the sensible fermentation have regularly proceeded, and been stopped in due time. We know certainly that, if a sufficient time have not been allowed for the first period of the fermentation, the unfermented matter that remains, being in too large a quantity, will then ferment in the bottles, or close vessels, in which the wine is put, and will occasion effects so much more sensible as the first fermentation shall have been sooner interrupted; hence these wines are always turbid, emit bubbles, and sometimes break the containing vessels, from the large quantities of air disengaged during the fermentation. We have an instance of these effects in the wine of Champagne, and in others of the same kind; the sensible fermentation of which is interrupted, or rather suppressed, that they may have this sparkling quality. It is well known that these wines make the corks fly out of the bottles; that they sparkle and froth when they are poured into glasses; and, lastly, that they have a taste much more lively and piquant than wines that do not sparkle; but this sparkling quality, and all the effects depending on it, are only caused by a considerable quantity of carbonic acid gas, which is disengaged during the confined fermentation that the wine has undergone in close vessels. This air, not having an opportunity of escaping, and of being dissipated as fast as it is disengaged, and being interposed betwixt all the parts of the wine, combines, in some measure, with them, and adheres in the same manner as it does to certain mineral waters, in which it produces nearly the same effects. When this air is entirely disengaged from these wines, they no longer sparkle, but lose their brisk taste, and become insipid. Such are the qualities which wine acquires, in time, when its first fermentation has not continued sufficiently long. These qualities are given purposely to certain wines to indulge taste or caprice; but they are not regarded as suited to daily use. Wines for daily use ought to have undergone so completely the sensible fermentation, that the succeeding fermentation shall be insensible, or, at least, very nearly so. Wine, in which the first fermentation has been too far advanced, is liable to worse inconveniences than that in which the first fermentation has been too quickly suppressed; for every fermentable liquor is, from its nature, in a continual intestine motion, more or less strong, according to circumstances, from the first instant of the spirituous fermentation till it is completely purified; hence from the time of the completion of the spirituous fermentation, or even before the wine begins to undergo the acid or acetous fermentation. This acid fermentation is very slow and insensible, when the wine is included in very close vessels and in a cool place; but it gradually advances, so that in a certain time the wine becomes completely sour. This evil cannot be remedied, because the fermentation may advance, but cannot be reverted. Wine merchants, therefore, when their wines become sour, can only conceal or remove this acidity by alkalies or alkaline earths. But these additions communicate to wine a dark, greenish color, and a taste which, though not acid, is somewhat disagreeable. Besides, calcareous earths accelerate, considerably, the total destruction and putrefaction of the wine. Oxides of lead, having the property of forming with the acid of vinegar a salt of an agreeable saccharine taste, which does not alter the color of the wine, and which, besides, has the advantage of stopping fermentation and putrefaction, might be employed to remedy the acidity of wine, if lead and all its preparations were not pernicious to health, as they occasion most terrible colics, and even death when taken internally. If wine contain oxide of lead, it may be discovered by transmitting through a portion of it, in a wine-glass, a current of sulphureted hydrogen gas, which will cause a glistening, black precipitate of sulphuret of lead. (See *Fermentation*, and *Vinegar*.) When the wine has attained a sufficient degree of maturity, it is freed from the lees, by being *racked*, as it is termed, into a clean cask; and, in order to prevent a renewal of the fermentation, it is subjected to the operation of sulphuring. This process is generally performed by means of sulphur matches, applied to the cask into which the wine is to be racked, and, should the fermentation still continue, must be renewed as often as is necessary. Sometimes must, strongly impregnated with sulphurous acid gas, is added to the wine, and answers the same purpose. After sulphuring, the greater proportion of wines require to be further clarified, or fined, before they attain a due brightness. For this purpose, various substances are used, which, by their chemical or mechanical action, unite with such materials as disturb the purity of the wine, and precipitate with them to the bottom. The substances in general use are isinglass and the white of eggs; but, as these are of a putrescent nature, gum Arabic has been used instead of them. In Spain, the white wines are sometimes clarified with fuller's earth: powdered marble, gypsum, heated flints, beech-wood chips, sand, &c., are also used. When the wine has thus been prepared, it is almost always *medicated*, as it is called, before it is ready for the market; and very little wine is, in fact, a simple or natural liquor. One of the most common processes of medication is mixing different wines together, sometimes of the same quality or country, but often of different ones. For this purpose, that season is chosen in which the wines show a disposition to renew their fermentation. They are then said to *bear the fret*; and the operation is called *fretting-in*. The mixing different wines always disturbs both, so that they tend to ferment again; and when the fermentation is determined, they form a proper compound. In the wine countries, particular grapes (rough, or colored, or astringent, or high-flavored) are cultivated for the mere purpose of mixing their juice with that of others. Another process is that of mixing brandy with the natural liquor. The tendency of this substance, thus mixed, is to decompose the wines in process of time, causing the extractive matter, or mucilage, to be deposited, as well as the color, and, at the same time, to destoy their lightness and flavor. Few wines naturally possess much flavor; and the same is true, to a great degree, of color. It is therefore a part of the business of the manufacturer to communicate, artificially, such a flavor and color as the taste of the customer demands. This result is obtained in various ways, some of which continue a secret. The flavor, however, is often generated by the application of bitter almonds, oak chips, orris-root, wormwood, rose-water, &c., while color is produced by the use of dyewoods, logwood, &c., berries, oak chips, burnt sugar, iron, &c. Both processes require to be managed with great delicacy and skill.

Wines are red, when the black grape, with its skin, has been used, and of more or less yellowish-white color, when the white grape, or even when the black grape, freed of its skin, has been employed. Wines, with respect to their properties, may be divided into three principal divisions, viz. 1. the *astringent* or *dry wines*; such are those of Alicant, Bordeaux, Burgundy, Sherry, Madeira, &c. These wines contain a small quantity of tannin, which gives them a taste more or less harsh. 2. The *sweet wines*, such are Malaga, Rota, Rivesaltes, Lunel, &c., containing a tolerably large quantity of sugar, which has escaped fermentation. And, 3. the *foaming* or *sparkling wines*, such as champagne, which, being bottled up before they have undergone a perfect fermentation, contain a large quantity of carbonic acid gas in solution. All the wines give, on analysis, very nearly the same products, viz. water, alcohol, a little mucilage, coloring principles, supertartrate of potassa, tartrate of lime, acetic acid; and some of them contain, besides, carbonic acid; finally, a very volatile principle, which has not as yet been isolated, and to which the peculiar flavor or *bouquet* of the wine has been attributed. To the presence of alcohol they are principally indebted for their stimulant and diffusible properties; and this principle, which may be separated by distillation, exists in them in very different proportions, as may be perceived by the following table, drawn up by Mr. Brande:—

Names of the Wines, Malt and Spirituous Liquors, and the Proportion of Alcohol (specific gravity 0.825) *in one hundred Parts of these Liquids by Measure.*

Lissa (average)	25.41
Marsala (average)	25.09
Port (average)	23.39
Madeira, and red or Burgundy Madeira (average)	22.27
Xeres or Sherry (average)	19.17
Teneriffe	19.79
Lachryma Christi	19.70
Constantia (white)	19.75
Ditto (red)	18.92
Lisbon	18.94
Cape Muscat	18.25
Roussillon (average)	18.13
Malaga	17.26
Hermitage (white)	17.43
Malmsey Madeira	16.40

Lunel	15.52
Bordeaux wine or claret (average)	15.10
Sauterne	14.22
Burgundy (average)	14.57
Nice	14.63
Champagne (still)	13.80
Ditto (sparkling)	12.61
Red Hermitage	12.32
Vin de Grave	13.37
Frontignac	12.89
Côte rôtie	12.32
Rhenish wine (average)	12.08
Tokay	9.88
Gooseberry wine	11.84
Cider (highest average)	9.87
Ditto (lowest ditto)	5.21
Mead	7.32
Ale (average)	6.87
Brown stout	6.80
Porter (average)	4.20
Small beer	1.28
Brandy	53.39
Rum	53.68
Gin	51.60
Whiskey	54.32
Irish ditto	53.90*

The action of wines upon the animal economy depends principally upon the quantity of alcohol they contain. However, a certain given quantity of wine does not act in the same way as a mixture of alcohol and water in the same proportions; and certain wines, yielding on distillation very nearly the same proportion of alcohol, do not inebriate with the same facility. This difference must be ascribed to the various kinds of combinations in which alcohol exists in these complex products. Astringent wines act as tonics and stimulants; and the sparkling wines, which act so promptly and so powerfully on the brain, notwithstanding the small proportion of alcohol they contain, exercise likewise a very decided diuretic influence. In regard to the dietetic or medical qualities of the different sorts of wines, we copy the following observations from Henderson's valuable work (History of Wines, quarto, 1824), from which we have borrowed largely in compiling this article. "1. Among the brisk wines, champagne may be considered the best, and is the least noxious, even when drunk in considerable quantity. The wines of Champagne intoxicate speedily, probably in consequence of the carbonic acid in which they abound, and the volatile state in which their alcohol is held; and the excitement is of a more lively and agreeable character, and shorter duration, than that which is caused by any other species of wine, and the subsequent exhaustion less. Hence the moderate use of such wines has been found, occasionally, to assist the cure of hypochondriacal affections and other nervous diseases, where the application of an active and diffusible stimulus was indicated. The opinion which prevails that they are apt to occasion the gout, seems to be contradicted by the infrequency of that disorder in the province where they are made; but they are generally admitted to be prejudicial to those habits in which that disorder is already formed, especially if it has originated from addiction to stronger liquors. With respect to this class of wines, however, it is to be observed that they are drunk too often in a raw state, when, of course, they must prove least wholesome; and that, in consequence of the want of proper cellars, and other causes which accelerate their consumption, they are very rarely kept long enough to attain their perfect maturity. It is also worthy of notice, that, in order to preserve their sweetness, and promote effervescence, the manufacturers of champagne commonly add to each bottle a portion of sirup, composed of sugar-candy and cream of tartar, the highly frothing kinds receiving the largest quantity. Therefore, contrary to the prevailing opinion, "when the wine sparkleth in the glass, and moveth itself aright," it is most to be avoided, unless the attributes of age should countervail all its noxious properties. 2. The red wines of Burgundy are distinguished by greater spirituosity, and a powerful aroma. Owing, perhaps, to the predominance of the latter principle, they are much more heating than many other wines which contain a larger proportion of alcohol. The exhil-

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* Upon this subject Henderson remarks, that some of the wines analysed by Brande, were mixed with a considerable quantity of adventitious alcohol, and furnishes the following additions and corrections :—

Lissa	15.90
Claret	12.91
Constantia	14.50
Marsala	18.40
Rhenish	7.36
Johannisberger	8.71
Rüdesheimer (1811)	10.72
Ditto (1800)	12.22

Many of these wines are, indeed, artificially compounded; but it is their artificial strength that it is most desirable to understand, because they are rarely found in a natural state. It should be also observed that much of the wine here analysed is brandied expressly for the taste of the British market, and that in this country we receive it in a purer condition.

aration, however, which they cause, is more innocent than that resulting from the use of heavier wines. The better sorts may be sometimes administered with advantage in disorders in which stimulant and subastringent tonics are required. The same observation will apply to the wines of the Rhone, and the lighter red wines of Spain and Portugal. 3. Possessing less aroma and spirit, but more astringency, than the produce of the Burgundy vineyards, the growths of the Bordelais are perhaps, of all kinds, the safest for daily use, as they rank among the most perfect light wines, and do not excite intoxication so readily as most others. They have, indeed, been condemned by some writers as productive of gout, but, I apprehend, without much reason. That with those people who are in the practice of soaking large quantities of Port and Madeira, an occasional debauch in claret may bring on a gouty paroxysm, is very possible; but the effect is to be ascribed chiefly to the transition from a strong brandied wine to a lighter beverage—a transition almost always followed by a greater or less derangement of the digestive organs. Besides, we must recollect, that the liquor which passes under the denomination of claret is generally a compounded wine. It is therefore unfair to impute to the wines of the Bordelais those mischiefs which, if they do arise in the manner alleged, are probably, in most instances, occasioned by the admixture of other vintages of less wholesome quality. 4. The wines of Oporto, which abound in the astringent principle, and derive additional potency from the brandy* added to them previously to exportation, may be serviceable in disorders of the alimentary canal, where gentle tonics are required. But the gallic acid renders them unfit for weak stomachs; and what astringent virtues they show will be found in greater perfection in the wines of Alicant and Rota, which contain more tannin and less acid. The excitement they induce is of a more sluggish nature than that attending the use of the purer French wines, and does not enliven the fancy in the same degree. As a frequent beverage, they are unquestionably much more pernicious. 5. For a long time, the vintages of Spain, and particularly the sacks, properly so called (see *Sack*), were preferred to all others for medicinal purposes. The wines of Xeres (Sherry) still recommend themselves by the almost total absence of acidity. 6. Of all the strong wines, however, those of Madeira, when of good quality, seem the best adapted to invalids; being equally spirituous as Sherry, but possessing a more delicate flavor and aroma, and, though often slightly acidulous, agreeing better with dyspeptic habits. Some have thought them beneficial in cases of atonic gout, probably without much cause; for whenever a disposition to inflammatory disorders exists, the utility of any sort of fermented liquors is very doubtful. 7. The light wines of the Rhine, and those of the Moselle, are much more refrigerant than any of the preceding, and are frequently prescribed, in the countries where they grow, with a view to their diuretic properties. In certain species of fever, accompanied by a low pulse and great nervous exhaustion, they have been found to possess considerable efficacy, and may be given with more safety than most other kinds; as the proportion of alcohol in them is small, and its effects are moderated by the presence of free acids. They are also said to be of service in diminishing obesity. 8. It is difficult to conjecture on what circumstances the ancients founded their belief in the innocuous qualities of sweet wines, contrasted with the drier and more fully fermented kinds. They may not intoxicate so speedily, and, as they cloy sooner upon the palate, are perhaps generally drunk in greater moderation. When new, they are exceedingly apt to disorder the stomach; and when used too freely, they produce all the same effects as the heavier dry wines. In their more perfect state, they may answer the purpose of agreeable and useful cordials; but, as the excess of saccharine matter retards their stimulant operation, they ought always to be taken in small quantities at a time."

Wines, Ancient and Modern. Our limits will only permit us to touch upon this part of the subject. Among the Greeks and Romans, the sweet wines were those most commonly in use; and, in preparing their wines, the ancients often inspissated them until they became of the consistence of honey, or even thicker. These were diluted with water previously to their being drank; and, indeed, the habit of mixing wine with water seems to have prevailed much more in antiquity than in modern times. Among the principal Greek wines, the Maronean and Ismarian were of Thracian growth: the Pramnian, of uncertain growth, was a strong, hard, astringent liquor, resembling

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* These remarks are more particularly applicable to the Port intended for the British market.

Port; but the luscious sweet wines are the favorite topics of the Grecian drinking songs. They were chiefly the products of the Ionian and Ægean isles. The Chian was famous for its exquisite aroma, the Lesbian for its delicious flavor, and the Thasian was a generous sweet wine, acquiring by age a delicate odor of the apple. The Ariusian or Arivisian, and the Phanean, called by Virgil the king of wines, were products of Chios. Besides these and other indigenous growths, several African and Asiatic wines enjoyed a high reputation among the Greeks. The Bithynian wines were of the choicest quality: the wines of Byblos, in Phœnicia, vied in fragrancy with the Lesbian: the white wines of Mareotis and Tænia, in Egypt, were also famous for their delicate perfume. The finest wines used by the Romans were the produce of Campania (q. v.), which formed one continued vineyard. The Cecuban was a generous, light wine, but apt to affect the head, and ripening only after a long term of years. The Falernian, according to Henderson, was a strong, durable wine, being, when new, rough, harsh and fiery, and requiring to be kept a long time, before it attained a due degree of mellowness. The Setina was a delicate, light wine, the favorite of Augustus, but not even mentioned by Horace, who had a decided predilection for the strong wines. The Massican appears to have been a species of Falernian. The Calenum, Caulinum and Statanum were also highly prized by the Romans. The Albanian, when properly matured, was an excellent dry wine. Among the lighter growths of the Roman territory, the Sabine, Nomentan, Venafran and Spoletan were among the most agreeable. The Mamertine, a light and slightly astringent wine, and the Pollian, a sweet wine, were among the growths of Sicily. Spanish and Gallic wines were also used by the Romans, as well as the eastern growths. The richer wines were reserved by the ancients for the dessert; and among the Greeks the most esteemed dessert wines were the Thasian and Lesbian; among the Romans, the Cecuban, Albanian and Falernian of native growths, and, when they had become acquainted with the products of foreign countries, the Chian and Lesbian. Of the principal modern wines we have already spoken at considerable length under the separate heads. (See *Burgundy*, *Bordelais*, *Champagne*, *Rhenish*, *Moselle*, *Hungarian*, *Sherry*, *Port*, &c.) Madeira, so called from the island which produces it, is much used in this country. There is a great difference in the flavor and other qualities of the Madeira wines: the best are produced on the south side of the island: they may be kept for a very long period, and, as is well known, are often sent long voyages in warm climates, to mellow them. They are naturally very strong, but commonly receive an addition of brandy when racked off. The Madeira wines retain their qualities unimpaired in both extremes of climate, suffering no decay, and constantly improving as they advance in age. Indeed, they are not in condition until they have been kept for ten years in wood, and afterwards allowed to mellow nearly twice that time in bottle; and even then they will hardly have reached the utmost perfection of which they are susceptible. When of good quality, and matured as above described, they lose all their original harshness, and acquire that agreeable pungency, that bitter sweetishness, which was so highly prized in the choicest wines of antiquity, uniting great strength and richness of flavor with an exceedingly fragrant and diffusible aroma. The nutty taste, which is often very marked, is not, communicated, as some have imagined, by means of bitter almonds, but is inherent in the wine. The following statement of wines imported into the U. States for the years ending (Sept.) 1829 and 1831, indicate the quantity used in this country.

Year ending September, 1829.

	Gallons.
Madeira, ...	282,660
Burgundy, Champagne, Rhenish and Tokay, ...	23,562
Sherry and St. Lucar, ...	62,689
Wines of Portugal and Sicily,	352,350
Teneriffe and Azores, ...	61,467
Claret, &c., in bottles or cases,	356,332
Other wines, not in bottles or cases, ...	1,838,251
	2,977,311

Year ending September, 1831.

(Treasury Report, May 4, 1832.)

	Gallons.
Madeira, ...	114,625
Sherry, ...	78,905
Red, of France and Spain, . .	934,451
France, Spain and Germany, not enumerated, ...	1,888,355
Sicily, &c., not enumerated,	663,725
	3,680,062

Wing. The wings of birds correspond to the fore legs of quadrupeds and the arms of man. The clavicle of birds is a hollow tube of great strength, and the fork is peculiar to winged animals. The different bones of the wing are bound together, and connected with the bones of the body, by strong ligaments; and the muscles by which motion is communicated to them are the most powerful with which the animal is provided. All this peculiar apparatus is necessary to give due force to these instruments of locomotion. The construction and disposition of the feathers are nót less curious, and admirably adapted for the purpose of flying. (See *Feather*, and *Ornithology*, for many details on this subject.) The best form of windmill sails, which human ingenuity and science have been able to devise, bears a striking resemblance to the arrangement of the feathers in the wings of birds, and is one of many beautiful instances of the mathematical exactness of the principles on which the works of creation are constructed. The form of the wings is most accurately adapted to the habits of the birds. There are two forms, which have received the names of the *rudder-formed* and the *sail-formed* wings: the former are long, slim and tapering, as in the falcons, swallows, &c.; the latter broad, long, and rounded at the end, as in the swan, goose, &c. The former are for quick, sudden and rapid motion, and are moved often; the latter for floating a long time more slowly through the air.—The wings of insects are membranous, elastic, for the most part transparent, and traversed by firm air-vessels, which sometimes form a beautiful net-work. In some they are naked; in others, as in the butterflies, they are covered with fine, soft, feathery scales: in some they are extended and straight; in others folded. Some insects have four wings, and others but two: the latter are commonly provided with poisers or balancers (*halteres*). The difference in the structure and disposition of the wings is one of the distinctive marks on which the division of insects into orders is founded: thus we have the *hemiptera*, the *coleoptera*, the *lepidoptera*, the *neuroptera*, &c. (See *Insects*, and *Entomology*.)—Quadrupeds which fly are provided with membranes extending over the bones of the extremities, by which they are enabled to impel themselves through the air (see *Bat*); others merely have the skin so loose on the sides as to be spread out when the limbs are extended; and, being buoyed up in this manner, they are able to make surprising leaps. (See *Squirrel*.)—The desire of flying seems to have haunted men from the earliest times, and has given rise to many attempts to accomplish this object by means of artificial wings. The fable of Dædalus and Icarus shows how old this idea is; and many attempts have been made, in modern times, to carry it into execution, but without success. Degen, an ingenious watch-maker of Vienna, succeeded in sustaining himself in the air by means of artificial wings; and he went to Paris, in 1813, to exhibit his accomplishment; but he failed entirely in obtaining any command over them. Borelli (*De Motu Animalium*, Rome, 1680) has fully demonstrated, from a comparison of the muscles of man with those of birds, that artificial wings attached to the human body, could not be employed for this purpose. It is by no means impossible, however, that they might be applied to produce motion through the air, by being connected with some sort of cars, and set in motion by steam.

Winged, in botany; a term applied to such stems of plants as are furnished, all their length, with a sort of membranaceous leaves, as the thistle, &c.—Winged leaves are such as consist of divers little leaves ranged in the same direction, so as to appear only as the same leaf. Such are the leaves of agrimony, acacia, ash, &c.—Winged seeds are such as have down or hairs on them, which, by the help of the wind, are carried to a distance.

Wings, in military affairs, are the two flanks or extremes of an army, ranged in order of battle.—*Wings*, in fortification, denote the longer sides of horn-works, crown-works, tenailles, and the light outworks, including the ramparts and parapets, with which they are bounded on the right and left from their gorge to their front.

Wingolf. (See *Northern Mythology*.)

Winkelried, Arnold von; a knight of the Swiss canton of Underwalden, who, in the battle at Sempach, July 9, 1386, by the sacrifice of his life, enabled his countrymen to defeat the troops of Leopold, duke of Austria. The long lances of the latter frustrated the efforts of the Swiss to break their ranks. Many of the Swiss had already fallen, when Arnold von Winkelried called out to his comrades, "I will make a lane for you: faithful, dear confederates, think of my family," rushed on the enemy, grasped several lances, and, heedless of the thrusts, bore them to the ground. His countrymen followed through the opening which he had made, and won the battle of Sempach. The Swiss, on the anniversary of this day, celebrate a national festival, in honor of Winkelried, and those who fell with him.—See Müller's *History of Switzerland*.

Winkler, John Henry, the son of a miller in Lusatia, was born in 1703, studied at the university of Leipsic, from 1731 to 1739 was a teacher in a school in that city, in 1737 delivered lectures on experimental philosophy, natural theology, &c., and was afterwards appointed professor of philosophy in the university. In 1741—1745, he published a work on the souls of animals. In 1742, he was appointed professor of Greek and Latin, and published some philological works. He subsequently exchanged this professorship for that of natural philosophy, and published various works in this branch. Winkler and Hausen, professor of mathematics in Leipsic, did much to make the properties of electricity known in Germany, after public attention had been directed to the subject in England and France, about 1740, by William Gilbert. Winkler improved the electrical machines; and his Inquiries into Electricity were translated into English. He was chosen a member of the royal society, and was the first person in Germany who suggested the use of lightning-rods, in his dissertation *De avertendi Fulminis Artificio ex Doctrina Electricitatis* (1753), in which he alludes to Franklin's discoveries. He died in 1770.

Winnipeck, or **Winnipeg**; a lake of North America, 240 miles long, and from 5 to 60 in breadth; lon. 95° 48′ to 99° 12′ W.; lat. 50° 22′ to 53° 57′ N. It communicates, on its west side, with Little Winnipeck lake, by Dauphin river, St. Martin's lake, and Wetarhen river. On the south side, it receives the Assiniboin or Red river; and on the south-west it receives Winnipeck river. At this point the British fur companies have forts. The country around the lake is low, covered with timber, and the soil is pretty good. Wild rice grows in abundance.

Winnipiseogee; a lake of New Hampshire, east of the centre; lon. 71° 5′ to 71° 25′ W.; lat. 43° 29′ to 43° 44′ N. It is twenty-three miles long, and ten broad. It receives several small streams, and its waters are conveyed off by Winnipiseogee river, which joins the western branch of the Merrimack at Sanbornton, opposite Salisbury. This lake is 472 feet above the ocean, and 232 above Merrimack river. It is very deep, and in some parts is unfathomable by any means possessed by the inhabitants. Its waters are very pure, and abound with fish. Its form is very irregular, and it contains 365 islands. Some of these are large enough for extensive farms. The scenery connected with this lake is said to be superior to any thing else of the kind in the U. States. A pleasing description of it has been given by doctor Dwight in his Travels.

Winter (from wind, on account of the prevalence of storms at this season; so with the Greeks, χειμων, from χεειν, to pour, and with the Romans, *hyems*, from ὑειν, to rain, because in the more southern climates of the northern hemisphere it is a rainy season); the coldest season of the year, which begins astronomically on the shortest day (December 22), and ends with the vernal equinox (March 21). In the southern hemisphere, it is of course winter when it is summer with us. (See *Summer*.) In our hemisphere, the winter is but eighty-nine days, while, in the southern hemisphere, it is ninety-three days; our winter occurring during the earth's parhelion, and the winter of the southern hemisphere during its aphelion, when its motion in its orbit is slower. (See *Seasons*.) The coldness of winter is owing, therefore, to the shortness of the days, or time during which the sun is above the horizon, and the oblique direction in which his rays fall upon our part of the globe at that season. In the torrid zone, there is no winter, in our sense of the word; but a rainy season, without ice, snow or frost, takes its place. (See *Climate*, and *Temperature*.) This remark is also true of countries bordering on the tropical regions, to a considerable distance north and south.

Winter Solstice. (See *Solstice*.)

Winter, John William de, vice-admiral, was born in 1750, in Texel. At the age of twelve years, he entered the navy. In 1787, when the revolution broke out in Holland, De Winter was a lieutenant, and embraced with ardor the cause of the patriots; which circumstance obliged him to take refuge in France, when the party of the stadtholder prevailed. In France, he entered the army, and served, in 1792 and 1793, under Dumouriez and Pichegru, and soon rose to the rank of general of brigade. In 1795, when Pichegru invaded Holland, De Winter returned to his country, where the states-general offered him the rank of rear-admiral. The year following, he was made vice-admiral and commander of the naval forces at Texel. Having been blockaded here for a long time, he at last succeeded in evading the vigilance of the enemy, and, October 7, 1797, set sail with twenty-nine vessels, of which sixteen were ships of the line. The English fleet consisted of twenty ships of the line, and about fifteen frigates, and other vessels, under admiral Duncan. The action began October 11, and was maintained about three hours with equal spirit on both sides. De Winter's ship was at last taken, and he was carried on board the vessel of the British admiral. The Dutch lost nine ships of the line, taken or sunk, and about six hundred men killed, and eight hundred wounded. The loss of the English was also severe: some British vessels were sunk. De Winter received in England the honor due to his courage and talents. He was exchanged some months after; and a court-martial declared that he had gloriously sustained the honor of the Batavian republic. In 1798, he was sent, as minister of his republic, to that of France, where he remained in this capacity until 1802, when he received the command of an expedition intended to act against Algiers. He cruised for some months on the Barbary coast, and at last concluded a treaty with Tripoli. Louis Bonaparte, when king of Holland, made De Winter commander-in-chief of all the forces by sea and land. When Holland was united with France, Napoleon made him grand-officer of the legion of honor, and general-superintendent of the coasts of the North sea. In July, 1811, he gave him the command of the forces assembled at the Texel; but the fatigues of his new station ruined his health. He went to Paris, where he died June 2, 1812. His remains were deposited in the Pantheon.

Winter, Peter von, a distinguished composer of vocal music, was born at Manheim, in 1754, and was the son of a soldier. At the age of ten years, he was appointed a member of the orchestra of the elector. In 1775, he was director of the orchestra at Manheim, and subsequently at Munich. In 1780, he went to Vienna. In 1782, his first opera, Helen and Paris, was performed at Munich. In 1790, he went to Italy, where he was received with great favor. The first opera which he wrote in Italy was Cato in Utica, first performed in Venice in 1791. In 1795 and 1796, he went to Prague and Vienna. At the latter place, he wrote his most celebrated opera, the Sacrifice Interrupted. In 1802, he visited France and England. In Paris, he composed Tamerlane; in London, Calypso, Castor and Pollux, Proserpine, and Zaire. He also composed many pieces of church music, among which the requiem for the funeral of Joseph II is distinguished; also a *Miserere*. Among his profane cantatas, his Timotheus, or the Power of Tones, is particularly famous. He died in 1825, at Munich. His operas, oratorios, and other pieces of vocal and instrumental music, are too numerous to be given here.

Winterburger, John, established the first printing-press in Vienna, and cast the types himself. During seventeen years, he worked alone, but subsequently took an assistant. He published numerous editions towards the end of the fifteenth and beginning of the sixteenth centuries; but the copies have become very rare.

Winterfeldt, Hans Charles von, a general of Frederic the Great, was born in 1707, and entered the service in his sixteenth year. Frederic made him a major and his aid-de-camp, after his accession to the throne. In 1740, he was sent to Petersburg to prevent the Russian cabinet from taking part in the first Silesian war. He returned to the army, distinguished himself at Glogau and Mollwitz, and was made colonel. After his victory over the Hungarians at Schlawentiz, April 11, 1745, he was made major-general. He took part in the principal battles of that war. Previous to the third Silesian war, certain papers had been obtained from the archives of Dresden, by the treachery of a clerk. These disclosed the projects of Frederic's enemies; and, in consequence of Winterfeldt's advice, the king anticipated his enemies by the immediate commencement of hostilities. He was subsequently made lieutenant-general, and distinguished himself in many battles in the seven years' war. (q. v.) In September, 1757, he was wounded near Görlitz, and died the next morning. His life, by his son, appeared at Leipsic in 1809.

Winthrop, John, governor of the colony of Massachusetts, was born at Groton, in the county of Suffolk, England, in 1587, and came out to Massachusetts in 1630, having been previously chosen governor. He continued to be reëlected, with the intermission of a few years, until his death, in 1649. His Journal contains an accurate account of events in the infant colony, from its foundation to the year of his death. The two first books were published in 1790; but the third, which was for a long time lost, first appeared in the edition of 1826 (Boston, 2 vols., 8vo.), under the care of J. Savage, who has enriched the work with valuable notes.—His son *John*, born in England in 1605, and educated at Cambridge, in that country, was a fellow of the royal society, and governor of the colony of Connecticut. He was the friend of Boyle, Wilkins, and other learned men, and one of the founders of the royal society, to the Transactions of which he contributed several papers. He died in 1676.—A son of the latter, *Fitz-John* (born 1638, died 1707), was also governor of Connecticut, and member of the royal society.

Wipperthal, or **Valley of the Wipper**, on the right bank of the Prussian province of Juliers-Cleves-Berg, is one of the most industrious parts of Germany. Since 1816, the population and industry of this valley have much increased. Here Elberfeld (q. v.), Gemark, Upper and Lower Barmen, Wipperfeld and Rittershausen form an almost uninterrupted town, with beautiful buildings and manufactories, and more than 40,000 inhabitants.

Wire-Drawing is the art of drawing out any of the ductile metals into long and regular threads of a uniform diameter, and of any size and shape. (See *Ductility*, and *Divisibility*.) The process of wire-drawing is extremely simple, the apparatus employed consisting only of a draw-plate and a draw-bench. The draw-plate is a thick plate of fine steel, perforated with holes of various sizes, from that of the largest to that of the smallest wire required. These holes are punched in the plate, while hot, by well-pointed punches of German steel, and differ in diameter by almost imperceptible gradations. The draw-bench consists of a horizontal roller or axis turned by levers. A strap or chain is coiled round the roller, and at the end of the strap is a pair of pincers for taking hold of the end of the piece of metal to be drawn. The draw-plate being made to bear against the draw-bench, and the levers being turned, the metal is pulled by the pincers through a hole in the draw-plate. It is afterwards drawn successively through smaller holes, being coiled upon the roller as it is drawn out. As the metal becomes stiff and hard by the repetition of this process, it is necessary to anneal it from time to time, to restore its ductility. It is also occasionally immersed in an acid liquid, to loosen the superficial oxide which is formed in the process of annealing.

Wire of Lapland; a shining, slender substance, made of the sinews of the reindeer, soaked in water, beat, and spun into a sort of thread, of great strength. The wire, as it is called, is made of the finest of these threads, dipped in melted tin, and drawn through a horn with a hole in it. This wire the Laplanders use in embroidering their clothes.

Wiring. (See *Sturdy*.)

Wirtemberg. (See *Würtemberg*.)

Wisbaden, or **Wiesbaden**, a town in the duchy of Nassau, famous for its baths, is pleasantly situated in a small plain, prettily built, and provided with pleasant promenades. Population, 4600; eight miles from Mentz. Its springs attract yearly from 3000 to 4000 strangers. Fourteen of them are hot (temperature of the hottest, 151°), and two cold. The duke of Nassau has a castle here, with a library of 27,000 volumes. The Romans were acquainted with the springs of Wisbaden, under the name of *Aquæ Mattiacæ*, or *Mattiaci fontes*; and the remains of works supposed to have been constructed by Drusus are still visible here.

Wisconsin. (See *Ouisconsin*.)

Wisdom, Book of. (See *Sirach*.)

Wishart, George, one of the first martyrs to the Protestant religion in Scotland, born in the beginning of the sixteenth century, appears to have been early distinguished by his attachment to the principles of the reformation, originating, it is said, in his travels to Germany, where he became acquainted with the opinions of Luther. Some accounts assert that he was banished from his own country for teaching the Greek Testament, and that he subsequently resided for some years in the university of Cambridge. In 1544, he returned to Scotland, where he was received with the most ardent good will, and began to preach against the corruptions of the church of Rome, and the vices of the clergy. This conduct exasperated cardinal Beaton, and the priesthood under his influence, and subjected the life of Wishart to more than one attack, until, at last, he was arrested, and, in 1546, put on his trial for obstinate heresy, before a convocation of prelates and clergy, assembled for the purpose in the cathedral. He was found guilty, and condemned to the flames; which sentence was put into execution the following day, in the castle yard, with great pomp and ceremony. Most accounts assert that the cardinal and clergy attended; and so much indignation was apprehended on the part of the people, that the artillery of the castle was pointed towards the place of execution. (See M'Crie's *Life of Knox*.)

Wishtonwish. (See *Marmot*.)

Wismar; a town in Mecklenburg-Schwerin, capital of a district, on a bay of the Baltic, opposite to the island of Poel, thirty miles west-south-west of Rostock, thirty-three east of Lübeck; lon. 11° 26′ E.; lat. 53° 55′ N.; population, 10,000. It is surrounded with a wall and moat, has a safe harbor, though not deep enough for large vessels. It has a gymnasium, a public library, three hospitals, three churches, some manufactures of woollens and linens, and considerable shipping trade, particularly in corn. It was formerly a Hanse town. In the beginning of the seventeenth century, it was added to the duchy of Schwerin, and, by the peace of Westphalia (q. v.), was ceded to Sweden. It has, since then, been repeatedly besieged. In 1803, Wismar, with its territory, was ceded to the duke of Mecklenburg-Schwerin, for the sum of 1,200,000 dollars banco.

Wistar, Caspar, a distinguished physician, was born in the year 1760. His father was a German, from the Palatinate, who emigrated to this country, and settled, as a glass manufacturer, in New Jersey. He belonged to the society of Friends, of which society doctor Wistar remained a member. He was educated at the grammar school, established by William Penn, in Philadelphia, and early determined to pursue the profession of physic. With this view, he entered as a private pupil with doctor John Redman, and attended the lectures then given in the medical school of Philadelphia, which was daily rising in public estimation. In 1782, he received the degree of bachelor of medicine, after passing an uncommonly satisfactory examination; and, in the course of the next year, he left America to pursue his studies in Europe. In 1786, he graduated at Edinburgh with great reputation, and published his thesis *De Animo demisso*. During his absence from this country, he travelled over a great part of England on foot, examining the mining and manufacturing districts of that country, and whatever else was likely to engage the attention of a man of science. He perambulated Scotland also in the same way. The associations he formed, the friendships he contracted, and the reputation he established wherever he resided, were honorable to himself and his country. The royal medical society of Edinburgh chose him a member. In February, 1787, he returned to Philadelphia, having been absent between three and four years. When the college of Philadelphia was revived, he was appointed professor of chemistry and physiology, in which departments he gave lectures during the winter sessions of 1789 and 1790. He was also appointed, soon after his return, consulting physician to the Philadelphia dispensary, and was one of its early attending physicians. He was further appointed physician to the hospital, and afterwards became adjunct professor to doctor William Shippen, in the departments of anatomy and surgery. As assistant to doctor Shippen, he acquired the practical skill, as a dissector and demonstrator, which laid the foundation of his subsequent reputation. On the decease of doctor Shippen, doctor Wistar was appointed to fill the chair of his departed friend: he had, in fact, long performed the duties of this department. In 1815, he was elected honorary member of the literary and philosophical society of New York. In 1816, he was unanimously elected president of the American philosophical society. Doctor Wistar was too actively engaged to appear often in the character of an author; but his Remarks on the Fever of 1793, his Memoirs on the Ethmoid Bone, and on the Remains of an Animal of the Bos Species, were well calculated to enhance his reputation. At the time of his decease, he was fast rising into reputation as a comparative anatomist, and had instituted a correspondence with Cuvier, Sömmering, and other eminent naturalists in Europe. His System of Anatomy, (2 vols., Philadelphia, 1812), comprising the heads of his course, is a most useful compend, embracing not merely the anatomy, but the anatomical physiology, of the parts noticed, according to the best views at present known of that branch of the subject. Doctor Wistar was a most active contributor to knowledge of all kinds, by his scientific meetings at his own house, which was the place of resort of all strangers who had information to communicate, as well as of his friends who were engaged in any scientific pursuit. As a professor of anatomy, he was very eminent. Perfect master, not only of the minutiæ of his profession, but of the most effectual modes of teaching it, his lectures were always crowded. He was remarkable for the skill and care with which his subjects were prepared and brought forward; the simple, neat, intelligible style of his lectures; the kind and friendly character of his voice and manner; and his anxiety to make his students fully comprehend what they had to learn. He died on January 22, 1818, of a slow fever, caught by attending a poor family in a confined apartment. Doctor Wistar was twice married, and, by his second wife, left two children.

Wit is the faculty of detecting, and presenting in a lively manner, similarities in things in which common observers see only diversity. The finding of such similarities presupposes comparison; and wit might therefore be defined a facility in the comparing power to discover unexpected relations, or a playful exercise of the power of comparison. We sometimes apply the name of *wit* to various other sorts of ingenious thoughts expressed in words, in which sense it corresponds to the French *bon mot*. Wit is the more striking, the more easily it brings together things which, to the common observer, appear distinct, and the less obvious the resemblances which it discovers. It is intimately connected with vivacity and quickness of imagination, and is much improved by practice. The similarities or differences which wit points out, need not actually exist, but may be merely the creation of the imagination. There must, however, be some ground for the relation presented, though it may be a trifling one, which is called the *point of comparison* (*tertium comparationis*). Dugald Stewart inclines to believe that the pleasure afforded by wit, is founded, to a considerable degree, on the surprise of the hearer at the command which the man of wit has acquired over a part of the constitution so little subject to the will. Hence it is that we are more pleased with a *bon mot* which occurs in conversation, than with one which appears in print; and we never fail to receive disgust from wit, when we suspect it to be premeditated. Doctor Campbell remarks that a witty repartee is infinitely more pleasing than a witty attack, and that an allusion will appear excellent when thrown out extempore in conversation, which would appear execrable in print. Wit is a dangerous power. When employed to attack pedantry, pretension, or folly, not easily assailable in other ways, it is in its proper sphere; but its power may be, and often has been, used to make truth ridiculous. Its influence is most dangerous among those nations whose apprehension is most quick, and whose sensibility is most lively. How important an influence have some *bons mots* exerted in France, false and noxious though they were! Wit has even sometimes taken the place of philosophy (q. v.) in that country; but its influence, at present, is much diminished. Wherever it becomes the habitual exercise of the mind, it impairs the nobler powers of the understanding, and chills the feelings. When too much in vogue, it gives a superficial character to the tone of society, and creates a craving for evanescent excitement. The merely witty are seldom popular: they are feared and hated, because they have a weapon which others feel the want of; but when wit is united with superior intellectual powers, and particularly with a kind disposition, it is a most valuable gift, and of very great advantage to public men. Wit is a talent, and therefore natural; but it may be much developed by exercise, and is promoted by general liveliness of conceptions, agreeable social intercourse, and an easy condition in life. It is, at the same time, one of the most difficult talents to manage, as few will abstain from a witty observation from fear of hurting the feelings of others, and departing from the tone of kindness so necessary in good society.

Witch, Witchcraft. A witch is a person who has acquired supernatural power by entering into a compact with evil spirits. In this sense of the word, the notions of witchcraft are essentially of modern origin, being entirely distinct from the superstitions of the ancients concerning the magical powers of the enchantments of their sorcerers. (See *Magic*.) The term *witch* occurs, indeed, in our version of the Scriptures, according to which, the law of Moses is, "Thou shalt not suffer a witch to live" (*Exodus*, xxii, 18); but, besides that many commentators believe the Hebrew term *charasp*, here translated *witch*, should be rendered *poisoner*, there is nothing to indicate any such infernal league between the Hebrew sorceress and diabolical powers, as is the distinctive mark of modern witchcraft. Trafficking with idols, using charms, invocations, &c., seem to constitute the crime of witchcraft, so often referred to in the Scriptures, both of the Old and New Testament. Among the early Christians, the belief in the active agency of the spirit of evil in human affairs, became more fully developed than it had previously been; and it has been a familiar notion with Christian writers, from an early period, that the gods of the ancients were actually wicked spirits, who had led the nations astray from God, and blinded them to destroy them. Hence they have attributed to the heathen oracles the character of prophecy, but ascribed their prophetic powers to the devil; and it is well known that the Sibylline oracles have been quoted, by Christian theologians, in proof of the divine character of the Savior. "There appears nothing," says sir W. Scott (Demonology and Witchcraft) "inconsistent in the faith of those, who, believing that, in the elder time, fiends and demons were permitted an enlarged degree of power in uttering predictions, may also give credit to the proposition, that, at the divine advent, that power was restrained, the oracles silenced, and those demons who had aped the divinity of the place, were driven from their abode on earth, honored as it was by a guest so awful." The opinion here alluded to is the commonly-received opinion that the heathen oracles were struck silent at the time of the coming of Jesus Christ.* (See *Demon*, and *Devil*.) The legends of the saints, the tales of the trials and temptations of holy anchorets, in many of which the devil plays so important a part, contributed to extend and confirm the popular notions; and, a direct diabolical agency being once assumed and allowed, there was nothing too absurd to be engrafted on it. The insane fancies of diseased minds, unusual phenomena of nature, and the artful machinery of designing malignity, ambition, or hypocrisy, were all laid at Satan's door. In the *Sachsenspiegel* (q. v.) of the thirteenth century, the sorcerer and the witch are ordered to be burned; but it was not until the fifteenth century that the proceedings against witchcraft assumed their most hideous form. In 1484, Innocent VIII issued a bull directing the inquisitors to be vigilant in searching out and punishing those guilty of this crime; and the form of proceeding in the trial of the offence was regularly laid down in the *Malleus Maleficorum* (Hammer of Witches), which was issued soon after by the Roman see. The bull of Innocent was enforced by the successive bulls of Alexander VI (1494), Leo X (1521), and Adrian VI (1522). Of the extent of the horrors which followed, during two centuries and a half, history gives us her record. We are told that 500 witches were burned at Geneva, in three months, about the year 1515; that 1000 were executed in one year in the diocese of Como; in Würtzburg, from 1627 to 1629, 157 persons were burned for witchcraft; and it has been calculated that not less than 100,000 victims must have suffered, in Germany alone, from the date of Innocent's bull to the final extinction of the prosecutions. The last execution in Würtzburg took place so late as 1749, and a witch was burned in the Swiss canton of Glarus in 1780. Bamberg, Paderborn, Würtzburg and Treves were the chief seats of this delusion in Germany. In England, the state of things was no better; and even the reformation, which exploded so many other errors, seems to have had no influence upon this. Individual cases of trial for witchcraft occur in that country previous to the enactment of any penal statute against it; and the successive statutes of Henry VI, Henry VII (1541), Elizabeth (1562), and James I (1603),—the last passed when lord Bacon was a member of the house of commons, and not repealed until 1736,—show the extent of the legislative proceedings in regard to this imaginary crime there.† The judicial proceedings were checked chiefly by the firmness of Holt, who, in about ten trials, from 1694 to 1701, charged the juries in such a manner as to cause them to bring in verdicts of acquittal. Yet, in 1716, Mrs. Hickes and her daughter, nine years of age, were hanged for selling their souls to the devil, and raising a storm by pulling off stockings and making a lather of soap. The number of those put to death in England has been estimated at about 30,000! The last victim executed in Scotland perished in the eighteenth century (1722). "She was," according to sir W. Scott, "an insane old woman, who had so little idea of her situation as to rejoice at the sight of the fire which was destined to consume her. She had a daughter lame both of hands and feet—a circumstance attributed to the witch's having been used to transform her into a pony, and get her shod by the devil."—Our own country, unhappily, furnishes a chapter in this dreadful history of human folly. In 1692, nineteen persons were executed, and one pressed to death, in Salem and its vicinity, for the crime of witchcraft; but, though several were condemned and many accused, there were no executions subsequent to that year.—See, on this subject, Horst's *Zauber-Bibliothek*, &c.—i. e. Magical Library, or of Magic, Theurgy and Necromancy; Magicians, Witches, and Witch-Trials, Demons, Ghosts, and Spectral Appearances (Mentz, 6 vols., 8vo., 1826); and his *Dämonomagie*, or History of the Belief in Magic, &c. (2 vols., 1818). —According to the notions of the times above indicated, witches were able, with the assistance of the devil, not only to foretell events, but to produce mice and vermin; to deprive men and animals, by touching them, or merely breathing upon them, of their natural powers, and to afflict them with diseases; to raise storms; to change themselves into cats, and other beasts; &c. The compact with the devil was sometimes express, whether oral or written, when the witch abjured God and Christ, and dedicated herself wholly to the evil one, or only implied, when she actually engaged in his service, practised infernal arts, and renounced the sacraments of the church. The express compact was sometimes solemnly confirmed at a general meeting, over which the devil presided, and sometimes privately made by the witch signing the articles of agreement with her own blood, or by the devil writing her name in his black book. The contract was sometimes of indefinite duration, and, at others, for a certain number of years. The witch was bound to be obedient to the devil in every thing, while the other party to the act promised her wealth and treasures; but the gold thus obtained usually turned into some worthless material in the hands of its possessor. These and similar facts were gathered from the *voluntary confessions* of persons accused of this crime, whose ingenuity was generally quickened by the application of what was then called "*gentle torture*." General assemblies of witches were held yearly or oftener, in which they appeared entirely naked, and besmeared with an ointment made from the bodies of unbaptized infants. To these meetings they rode, from great distances, on broomsticks, pokers, goats, hogs or dogs; the devil taking the chair under the form of a goat. Here they did homage to the prince of hell, and offered him sacrifices of young children, &c., and practised all sorts of license until cock-crowing. Besides extorting confessions by torture, it was usual to subject the accused to the witch-ordeal; that is, their thumbs being tied together, they were thrown into the water, and if they did not sink they were considered guilty.

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* In Brown's Dictionary of the Holy Bible (fifth edition, Edinburgh, 1807), it is said that "A witch is a woman that has dealing with Satan; that such persons are among men is abundantly plain from Scripture, and that they ought to be put to death. It is plain, however, that great caution is necessary in the detection of the guilty, and in punishing them, lest the innocent suffer." This work was republished in Albany, in 1816!

† "To deny the possibility, nay, actual existence, of witchcraft and sorcery," says Blackstone (Commentary on the Laws of England, B. iv., ch. 4, sec. 6), "is at once flatly to contradict the revealed word of God in various passages both of the Old and New Testament; and the thing itself is a truth to which every nation in the world hath in its turn borne testimony, either by examples seemingly well attested, or by prohibitory laws; which, at least, suppose the possibility of a commerce with evil spirits."

Witch-Hazel (*hamamelis virginica*); a North American shrub, remarkable for putting forth its flowers at the season when most of our forest-trees are parting with their leaves. It grows six or eight feet high, dividing, at base, into several cylindrical, grayish branches: the buds and young shoots are covered with short down: the leaves are about four inches long by two or three broad, alternate, petiolate, oval, obtuse, having a few coarse indentations: the flowers are clustered, yellow and showy, having long and linear petals. It is common in most parts of the U. States. A forked twig of the witch-hazel forms the celebrated divining rod (q. v.), which has been used in many parts of the interior to impose on the credulous.

Wither, George, an old English poet, was born at Bentworth, in Hampshire, June 11, 1588. His parents, who were very respectable, sent him to Magdalen college, Oxford. He was, however, prematurely removed from the university, with a view to agricultural pursuits; but, disliking a country life, he went to London, and entered himself a student of Lincoln's inn. Here he paid more attention to the muses than to law, and acquired the reputation of a poet. In 1613 appeared his celebrated satires, entitled Abuses Stript and Whipt, the severity of which led to his confinement in the Marshalsea, where he wrote his Satire to the King, which procured his release. In 1615, he published his Shepherds Hunting, written during his imprisonment in the Marshalsea, the most poetical of all his works. Attaching himself to the Puritans, he was violently assailed by their opponents. He took an active part on the side of parliament when the civil war broke out, and sold an estate to raise a troop of horse, and obtained the rank of major. He was made a justice of peace, by the long parliament, for three counties, and major-general of all the horse and foot in the county of Surrey, by Oliver Cromwell. On the restoration, he lost all which he had amassed by his previous employment; and, having published a piece denominated *Vox Vulgi*, he was committed to Newgate, and afterwards to the Tower, where he was denied the use of pen, ink and paper. In this confinement he remained more than three years, and wrote several things, by the connivance of the keeper, which were subsequently published. When he was released is not recorded; but he died May 2, 1667. Some of his works have been republished by sir Egerton Brydges, including his Shepherds Hunting (1814), his Fidelia (1815), and his Hymns and Songs of the Church (1815). The other works are scarce.

Withering, William; a distinguished physician and writer on botany, who was born in 1741. He studied at Edinburgh, where he took his doctor's degree in 1766. He then settled at Stafford, and afterwards removed to Birmingham, where his skill and assiduity speedily raised him to eminence in his profession. The chief objects of his attention, independent of his duties as a medical practitioner, were chemistry and botany; and the result of his researches appeared in several valuable publications. Being subject to pulmonic disease, he thought it desirable, in 1793 and 1794, to pass the winter at Lisbon; and, after his return home, he did not again resume, to any extent, his professional practice. He died at the Larches, near Birmingham, in November, 1799. His principal publications are, a Systematic Arrangement of British Plants (2 vols., 8vo., 1776, extended, in the edition of 1787, to three volumes, and, in that of 1796, to four); an Account of the Scarlet Fever and Sore Throat, or *Scarlatina Anginosa* (1779, 8vo.); an Account of the Foxglove, and some of its Medical Uses, with Practical Remarks on the Dropsy and other Diseases (1785, 8vo.); a Chemical Analysis of the Waters at Caldas da Reinha (Lisbon, 1795, 4to.); besides a translation of Bergman's *Sciagraphia Regni Mineralis*, and papers in the Philosophical Transactions relative to mineralogy. The name of *Witheringia* has been bestowed on a genus of American plants by L'Heritier; and the native carbonate of barytes has received the appellation of *Witherite*, in honor of doctor Withering, who first discovered and described it.

Witherspoon. (See *Appendix*, end of this volume.)

Witness. (See *Evidence.*)

Witt, De. (See *De Witt.*)

Witte, Charles, a professor in the university of Breslau, distinguished for his early attainments, was born near Halle, in 1800. His father, a Protestant minister, devoted himself almost exclusively to his education. Young Witte could read well at the age of four years, and was regularly instructed in ancient and modern languages (Hebrew included) in his fifth year. Before his tenth year, he was admitted into the university of Leipsic, after undergoing a regular examination. When ten years old, he went to Göttingen. Here he wrote, at the age of twelve years, a Latin work, on a subject in the higher mathematics. He studied philosophy, languages, history, physics, chemistry, natural history, &c. At the age of thirteen, he became doctor of philosophy at Giessen. He then wrote a work in German, on mathematics, studied law, diplomatics, &c.; in 1816, became doctor of laws in Heidelberg, and afterwards went to Berlin to lecture; but, meeting with some obstacles, the Prussian government enabled him to travel in Italy; and, on his return, he was made professor at the university of Breslau. He has shown much acquaintance with old Italian literature, particularly Dante. His father published, in 1819, the History of the Education of his Son, in two volumes.

Wittekind, or Witikind; a celebrated prince of the Saxons, and their principal champion in the war against Charlemagne. The Saxons, a numerous and brave people, inhabited the northern part of Germany, between the Rhine, the Elbe and the North sea, or the present Westphalia and Lower Saxony, under the names of Eastphalians, Westphalians and Engrians. (See *Saxons.*) Charlemagne, desirous of putting a stop to their frequent incursions into his territories, and moved also partly by religious motives, determined to subdue these wild heathens. The war began in 772, and continued for about thirty years, till 803, with some intermissions. The Saxons, inferior to the Franks in military discipline and skill, were repeatedly defeated, and several times yielded to the commands of their victorious enemy, but again took arms as soon as his attention was drawn to other parts of his extensive empire. After gaining several decisive victories (783), Charlemagne had recourse to conciliatory measures, and prevailed upon Albion and Wittekind, the two leaders of the Saxons, to submit, on advantageous conditions, and embrace Christianity (785). Wittekind, who had been obliged to flee to Denmark, obtained the restoration of his territories, and, according to some writers, was created duke of Saxony. (See *Germany, History of.*) Wittekind is supposed to have fallen in battle against Geroald, duke of Suabia, in 807. The present Saxon princes claim a descent from Wittekind, but without much ground.

Wittenagemote. (See *Great Britain*, division *English Constitution.*)

Wittenberg, a town of historical interest as connected with the reformation, is situated on the Elbe, in the Prussian province of Saxony. Here is a bridge, 500 ells long, over the Elbe. Including the military, the town contains 6345 inhabitants. Since 1817, two new suburbs have grown up. The church in which Luther fixed up his ninety-five celebrated theses, Oct. 31, 1517, and in which he, Melanchthon, and the electors Frederic the Wise and John, lie buried, has been repaired by the Prussian government. The university, founded in 1502, by the elector Frederic the Wise, has been united, by the Prussian government, with that of Halle, and a theological seminary has been established instead of it. Charles V took Wittenberg in 1547, after the battle of Mühlberg; but the property of the people, their religious worship, and the tombs of the reformers, were left untouched. The emperor was requested to disinter the body of Luther; but he answered, "I wage no war with the dead." The city was bombarded in the seven years' war (q. v.), and dismantled. As the ditch and wall remained, Napoleon ordered marshal Victor to restore the fortifications, and garrisoned the place with Poles. The Prussians took it by assault at midnight, Jan. 12, 1814. The Prussian general, count Tauenzien, received the name Tauenzien von Wittenberg in consequence of this victory. The king of Prussia laid the corner-stone of a monument, in honor of Luther, in Wittenberg, on the third centennial celebration of the reformation. In 1822, the statue of the reformer, made of cast iron, by Schadow, was erected.

Wladimir (*Wlodimir*), czar of Russia, became, in 981, after the death of his two brothers, master of the Russian dominions, which he increased by the conquest of several neighboring tribes. Upon his marriage with the Greek imperial princess Anna Romanowna, in 988, he was baptized, and, together with his whole nation, adopted Christianity. The first Christian teachers of Russia came from Constantinople, and introduced the Greek Catholic worship, which still prevails in Russia. Wladimir, as the first Christian ruler, and the founder of many convents and schools, is called, in Russian history, a saint; and, as he laid the foundation of the subsequent greatness of the empire, he is also called the Great. He died in 1015. His descendants divided the empire among themselves to their own ruin. In 1782, Catharine II founded the order of St. Wladimir in honor of him.

Woad (*isatis tinctoria*); a cruciferous plant, occasionally cultivated for its leaves, which afford a dye, in use as a substitute for indigo. The seeds are sown on well-prepared land, and fresh-broken, old pasture ground is preferred. As the great object is to produce large leaves, the mode of culture given, by the best gardeners, to spinage should be imitated—that of sowing on a very rich, well-pulverized soil, thinning the plants so that they may not touch each other, keeping them perfectly clear of weeds, and frequently stirring the soil between them. The seeds are sown in July; and the plants, when they come up, are weeded and thinned. Next July, or earlier, the first crop of leaves may be gathered; and two or three others will be obtained during the season. At the end of the second year, the plants may be ploughed down, as the third year they will run to seed, and produce but small leaves. The leaves are pressed, and the juice treated as in making indigo; but such is the cheapness of the latter article, that the cultivation of woad is not much attended to at the present time. The plant grows wild in the south of Europe. The radical leaves are crenate, those of the stem oblong and arrow-shaped; the flowers are small and yellow, and the pods elliptical, flat, and contain a single seed. Woad is prepared for use as follows:—The plant puts forth, at first, five or six upright leaves, about a foot long and six inches broad. When these hang downwards and turn yellow, they are fit for gathering. Several crops are gathered in one year. The leaves are carried directly to a mill, much like the oil or tan mills, and ground into a smooth paste. The paste is laid in heaps, pressed close and smooth, and the blackish crust which forms on the outside reunited if it happen to crack: if this precaution were omitted, little worms would be produced in the cracks, and the woad would lose part of its strength. After lying for fifteen days, the heaps are opened, the crust rubbed, and mixed with the inside, and the matter formed into oval balls, which are pressed close and solid in wooden moulds. These are dried upon hurdles. In the sun they turn black on the outside, in a close place yellowish, especially if the weather be rainy. The dealers in this commodity prefer the first, though it is said the workmen find no considerable difference between the two. The good balls are distinguished by their being heavy, of an agreeable smell, and, when rubbed, of a violet color within. For the use of the dyer, they require a further preparation. They are beaten with wooden mallets, on a brick or stone floor, into a gross powder, which is heaped up in the middle of the room to the height of four feet, a space being left for passing round the sides. The powder, moistened with water, ferments, grows hot, and throws out a thick fetid fume. It is shovelled backwards and forwards, and moistened every day for twelve days, after which it is stirred less frequently, without watering, and, at length, made into a heap for the dyer. The powder thus prepared gives only brownish tinctures, of different shades, to water, to alcohol, to ammonia and to fixed alkaline lixivia. Rubbed on paper, it communicates a green stain. On diluting the powder with boiling water, and, after standing for some hours in a close vessel, adding about one twentieth its weight of lime newly slacked, digesting in a gentle warmth, and stirring the whole together every three or four hours, a new fermentation begins: a blue froth rises to the surface, and the liquor, though it appears itself of a reddish color, dyes woollen of a green, which, like the green from indigo, changes, in the air, to blue. This is one of the nicest processes in the art of dyeing, and does not well succeed in the way of a small experiment.

Woden, or **Odin**; one of the most powerful deities in northern mythology. Some have derived him from the Indian Buddha. The ancient Saxons and Thuringians honored him as their god of war; and the former solemnly vowed, in their war with Charlemagne, to sacrifice to him all their prisoners. (See *Northern Mythology*.) The Romans recognised their Mars in this northern god.

Woffington, Margaret, an actress, highly distinguished for her beauty and talents, was born at Dublin, in 1719. Her father kept a huckster's shop; and she commenced her theatrical career as the pupil of madame Violante, an exhibitor of feats of activity on the tight rope, who, about 1728, formed a company of Lilliputian actors. In these exhibitions little Woffington, then in her tenth year, attracted much notice as the representative of Macheath in the Beggar's Opera. A few years after, she procured an advantageous engagement at one of the regular Dublin theatres, where she acquired so much reputation, that she was invited to London; and, in 1740, she made her appearance at Covent garden, in the character of Sylvia, in the Recruiting Officer. She then took up the part of sir Harry Wildair, in which she was extremely successful. In comic characters, from the finished coquette or haughty lady of high rank and fashion, to the affected old maid, or vulgar termagant, she displayed a truth and facility of personification which has rarely been exceeded. Her attractions in private life were widely felt and acknowledged, and her society sought by persons of rank and talents. She was president of the weekly beef-steak club, held in the green-room of Covent garden theatre. At length the derangement of her health induced her to retire from the stage in 1759; and her death took place in 1760.

Wohlgemuth, Michael, an old German painter, born in 1434, died in 1519, was the teacher of Albert Dürer. There is a large altar piece by him in Nuremberg, his native city. There are also fine pictures by him in the galleries of Vienna, Munich and other cities, and those of private persons. Some have also thought the beautiful Last Judgment at Dantzic to be from his pencil. Like other painters of his time, he was also an engraver on copper and wood. The Chronicle of Nuremberg, published in 1493, contains wood-cuts by him.

Woiwode; a Sclavonic word, which signifies leader in war, and is a compound of the two Sclavonic words, *woi*, troops, and *wodit'*, to lead. The princes of Walachia and Moldavia were called *woiwodes* before they received from the Greek emperors, with whom they were in some degree connected (1439), the title of *despot*; instead of which they adopted, at a later period, the title of *hospodar*, which signifies lord. At present, *woiwode* signifies a Turkish farmer-general of the taxes of a district. In the old kingdom of Poland, *woiwodes* were governors of the districts (woiwodeships) into which the kingdom was divided. They administered justice, had charge of the police, and formed the first class of the temporal estates of the kingdom. In time of war, when the nobility were called upon to march, each woiwode commanded the nobility of his woiwodeship.

Wolcot, John, M. D., a poet and satirist, was born at Dodbrock, in the county of Devon, in 1738, educated at the free school of Kingsbridge, in the same county; after which he visited France, and, on his return, was articled to an uncle, an apothecary at Fowey. He early showed an attachment to poetry, as also to drawing, in which he became a considerable proficient. He subsequently visited London, to attend the hospitals, and, in 1767, obtained the degree of doctor of physic from Scotland, and accompanied sir William Trelawney to Jamaica, of which the latter was appointed governor. Here meeting but little encouragement as a physician, he obtained orders, and became rector of a living in the gift of his patron, which, being attended exclusively by a black congregation, received little of his attention. On the death of sir William Trelawney, he returned with his widow to England; and, on the decease of his uncle, who left him the principal part of his property, he settled as a physician, first at Truro, and afterwards at Helstone, in Cornwall. While in this situation, he had the merit of discovering the talents of the late celebrated painter Opie, then a mere youthful miner, with whom, in 1780, he came to London. Here he soon rendered himself conspicuous by those satirical compositions which he published under the name of *Peter Pindar*, and which, for the drollery and great peculiarity of their humor, became, in the highest degree, popular. His attacks were, in the first instance, chiefly levelled at the royal academicians; but, ultimately, the harmless singularities of George III, his consort and family, formed the principal field for his wit. So much was thought of his talents, that a negotiation was at one time entered into with him, by the under secretary of the treasury, to become either silent or to direct his satire against the opponents of administration, which, however, came to nothing, owing to his backwardness to write on that side of the question. Having obtained an annuity from his booksellers of £250 per annum, and being otherwise in easy circumstances by the sale of his productions, he passed the close of his life in ease and convivial enjoyment, interrupted, however, in the sequel, by blindness and other maladies. His death took place in Somers Town, in 1819, in the eighty-first year of his age. As a man, doctor Wolcot assumed much license, and may be regarded as an epicurean of the coarser class. As a poet, he exhibits freshness, *naïveté*, and a portion of humor, singularly made up of the playful and the biting. His works have lost much interest, owing to the temporary and personal nature of the subjects; but the extreme felicity with which he exposed the empty pretensions of false greatness, will not allow them to be altogether forgotten. His poetical works were collected, in 1812, in five volumes, octavo.

Wolcott, Oliver, a signer of the Declaration of Independence, was born in 1726, at Windsor, in Connecticut, of which colony his father had been governor. He graduated at Yale college in 1747, and soon afterwards, having received the commission of a captain, proceeded, at the head of a company raised by his own exertions, to join the army on the northern frontiers, with which he continued until the peace of Aix-la-Chapelle. He then returned to Connecticut, and commenced the study of medicine, but abandoned it on being appointed sheriff of the county of Litchfield. From 1774 to 1786, he was annually chosen an assistant in the council of the state. In that interval, he was also for some time judge of the court of common pleas for the county, and judge of the court of probate for the district of Litchfield. In 1776, his patriotism and ability procured for him a seat in the national congress, and the opportunity of connecting his name with the declaration of American independence. Immediately after the adoption of the declaration, he returned to Connecticut, and was invested with the command of fourteen regiments of the state militia, raised for the defence of New York. In November, he resumed his seat in congress. The following summer, after performing several military movements, he joined the northern army under Gates, with a corps of several hundred volunteers, and assisted in the defeat of Burgoyne. From this period until 1786, he was occupied in serving his country, either in congress or the field, or as a commissioner of Indian affairs for the northern department, settling terms of peace with the Six Nations. In the latter year, he was elected lieutenant-governor of the state, and, after ten successive annual reëlections, was chosen governor. He died Dec. 1, 1797, in the seventy-second year of his age.—Governor Wolcott was remarkable for intrepidity, integrity, strong, bold conceptions, and a peculiar decision of character. His sensibility was acute, and no one could have a nicer sense of honor. He was distinguished, moreover, for his love of order and religion.

Wold, Weld, Yellow Weed, or **Dyer's Weed** (*reseda luteola*); an imperfect biennial, with small fusiform roots, and a leafy stem, from one to three feet in height. It is a native of Italy and other parts of Europe, and is cultivated for the sake of its stalk, flowers and leaves, which are employed in dyeing yellow. Wold requires the growth of nearly two summers before it comes to maturity: the crop is also liable to fail, and is exhausting to the soil. It is preferred to all other substances for giving the lively green lemon yellow; but as it is found, when employed in topical dyeing, to degrade and interfere with madder colors more than other yellows, and to stain the white parts, quercitron bark is commonly employed in preference to it. It is still, however, employed in dyeing silk a golden yellow, and in paper-staining.

Wole, in northern mythology (q. v.); the protecting spirit of the earth—an old prophetess. The name *Voluspa* (the vision of Wole), given to the most ancient part of the Edda (q. v.), is derived from her.

Wolf (*canis lupus*). The wolf is by some naturalists considered the original stock of the domestic dog; and, indeed, it very much resembles a large dog in its general appearance. The European wolf habitually leads a solitary life, but, when urged by hunger, unites in packs, which, at times, even become dangerous to travellers. It possesses such strength that it is able to carry off a sheep at full speed, and few dogs are able to attack it with success. When taken young, it is easily tamed, and becomes attached to its keeper, recognising him even after a year's absence. The female brings forth her young in a retired place in the forest, and defends them courageously.—The American wolf is probably a distinct species; but this point is not yet perfectly ascertained. It was formerly numerous in all parts of the U. States, but is now almost extinct in the more settled districts.—We have another species of wolf—the prairie or barking wolf (*C. latrans*)—on the unwooded plains of the Missouri.—The black wolves are probably mere varieties of the common species.

Wolf, Christian Frederic von, chancellor of the university of Halle, a distinguished German philosopher and mathematician, was born in 1679, at Breslau. In 1699, he went to the university of Jena, to study theology; but mathematics and philosophy absorbed almost his entire attention. He studied zealously the works of Descartes and Tschirnhausen. In 1703, he obtained permission to lecture at the university of Leipsic, in consequence of his disputation, *De Philosophia practica universali Methodo mathematica conscripta*, and delivered philosophical and mathematical lectures. Several mathematical works made his name known in foreign countries. When the Swedes occupied Leipsic, in 1706, he left it, and, upon the recommendation of Leibnitz, in 1707, was appointed professor at Halle, where he acquired great reputation. His mathematical lectures were remarkable for clearness, precision, and systematic method. His philosophy, in which he pursued the same method, met with general approbation; and his method began to be applied also to other sciences, frequently in a pedantic and exaggerated manner. His colleagues, particularly the theologians, declared him a heretic and an infidel, and, at last, actually accused him to the government. King Frederic William I, November 15, 1723, dismissed him from his office, and ordered him to leave Halle in twenty-four hours, and the Prussian states within two days, threatening him with the gibbet in case he should remain. He received an honorable appointment at Marburg. The contest respecting his philosophical system now became general, and almost all Germany took part for or against him. He received offers of appointments in other countries; but he refused these, as well as an invitation to return to Halle, though the examination of his philosophy, by a committee appointed for that purpose, at Berlin, ended in his entire exculpation. In 1740, however, when Frederic the Great, who esteemed him highly, ascended the throne, he returned to Halle. In 1745, the elector of Bavaria, as vicar of the empire, raised him to the rank of nobility. Wolf's fame spread over Europe; but his reputation as a lecturer declined in the latter years of his life, and the number of his hearers decreased. He died in 1754, at the age of seventy-six years. His merits in promoting the progress of philosophy are not to be denied. He directed attention particularly to systematic method. His mathematical method brought light and order into the territory of science; and if the advance of philosophy has shown that the mathematical method is inapplicable to it, in its whole extent, still it cannot be denied, that great credit is due to him for having carried it through one of its stages. His influence on science and the whole intellectual developement of his countrymen was very great. The German language also owes him much. Kant gave the finishing blow to Wolf's dogmatic method.

Wolf, Frederic Augustus, the greatest philologist of his age, was born in Haynrode, a village near Nordhausen, in Thuringia, in 1759. His father was organist of the village, and subsequently teacher in Nordhausen. His mother, a woman of great ability, educated him well. He early acquired a taste for the study of languages. He was initiated in modern languages by an instructer named Frankenstein, who thought the acquisition of them so easy, if a good foundation was laid in the ancient languages, that he used to lend young Wolf the dictionary of each of them for two months only, a period which he considered sufficient for acquiring the necessary number of words, by copying and learning by heart. Even while at school, at Nordhausen, Wolf pursued the comparative study of the ancient and modern tongues, in order to draw up a comparative grammar. Before entering the university, he had made himself acquainted, partially at least, with the principal classic authors, and those of France, Spain, Italy and England. His father instructed him in music, and, after having prepared him sufficiently, put him under the care of a learned organist, named Schröter, who delighted him by his acquaintance with the ancient writings on music, while he tormented him with the mathematical part of the science. For mathematics Wolf had no taste, either in his youth or in his riper age. At the age of nineteen years, he went to the university of Göttingen, with the firm intention of devoting himself to philology exclusively. He requested to be called, in the form of matriculation, *philologiæ studiosus*, which was so uncommon a thing, that much objection was made to it; but he was not to be diverted from his resolution, though even Heyne tried to persuade him to have himself entered as *studiosus theologiæ*. His irregular attendance on the lectures brought him into bad repute, so that Heyne refused him permission to attend his lectures on Pindar, as utterly unqualified. But Wolf studied so much the more assiduously alone, and in the library of the university. In 1778, he published, at Göttingen, Shakspeare's Macbeth, with explanatory notes, for the use of some students whom he instructed in the ancient languages and English. In consequence of his constant application, he was twice dangerously sick. Before he left Göttingen, in 1779, he laid before Heyne his views respecting Homer, which differed from those of the distinguished professor, and were peremptorily rejected by him. In the same year, he went as teacher extraordinary to the academy at Ilfeld, where he made himself known to the philological world by his edition of Plato's Banquet, with notes in German, perhaps with the view of making himself known to the Prussian ministers, as he already had his eye upon a chair in a Prussian university, the name of Frederic the Great exercising a magic power on genius. In 1782, he was made rector of the town school at Osterode. In the next year, he was called upon to become ordinary professor of philosophy, particularly of the science of education, and director of the academy at Halle, with a salary of less than $200, which place and poor salary, though already married, he preferred to a much more lucrative one, also offered to him. He was then but twenty-four years old. At first, the students did not understand the tone he assumed; and it was not until he treated them as he had done his pupils at Osterode, that he obtained many hearers. It was not till the last ten years of his residence in Halle, that he returned to his first mode of teaching. As an academical teacher, Wolf followed his own peculiar views: he believed that classical antiquity must be considered as a model of a public and private life, founded on the noblest ideas, and be treated in this light, as a means of forming the minds of pupils at the universities. His great aim was to be a teacher. To appear as an author, which so many academical instructers regard as of the first importance, was with him but a secondary object. His uncommon activity is shown by the fact that, during the twenty-three years of his residence at Halle, he delivered above fifty courses of lectures, all replete with the traces of a genius of the highest order, in addition to his lectures and labors at the philological seminary. For the use of the students attending his mythological lectures, he published, in 1784, a new edition of Hesiod's Theogony, with a preface and a kind of commentary from lectures already delivered; but this was the only instance of his connecting any publication with his lectures. In the preface, a few cautious remarks show his views of the earliest Greeks, as exhibited fully, at a later period, in his *Prolegomena* to Homer. It does him great credit to have waited so long, and to have weighed and considered his ideas so often before publishing them. The book establishment connected with the orphan asylum at Halle (q. v.) requested him to undertake a reprint of Homer's works from the Glasgow edition. From that period, he often lectured on the whole of Homer. In 1792 appeared his edition of Demosthenes's Speech against Leptines, which added much to his reputation as a philologist, on account of its perfect Latinity, and the masterly character of its introduction, commentary, and corrections of the text. In 1795 followed volume i, of his *Prolegomena* to Homer, in which he gives his views respecting the ancient and original form of the Iliad and Odyssey, the changes which they have experienced, and the most probable mode of restoring them; showing, with rare sagacity and erudition, that the Iliad and Odyssey, as they exist at present, are not the work of one Homer, but of several Homeric rhapsodists. (See *Homer*.) The work attracted great attention all over Europe, gave rise to many controversies, and to the most important historical and critical inquiries. The author had no objection to controversy if truth was thereby elicited, but was offended with the assertions of certain scholars that they had long entertained similar ideas. He became, on this account, involved in disputes with several of them; and Heyne even endeavored to assume the credit of having suggested to Wolf the ideas which led him to this result. This caused the spirited Letters to Heyne, of which the three first are considered as excellent models of learned controversy and polished irony. In 1801, Wolf laid the critical knife to several speeches of Cicero, proving that they are not genuine, but ought to be considered as mere exercises in declamation, and are unworthy of the great orator. In 1802 appeared his edition of Suetonius. After having refused an invitation to Leyden, in 1796, and, in 1798, to Copenhagen, as director-general of the higher schools, and, in 1805, to Munich, he was made Prussian privy counsellor. Whilst he was occupied with a new edition of the Homeric works (1804 to 1807), the high school at Halle was abolished. Wolf was now in a very disagreeable situation. In 1807, he went to Berlin, and became member of the department for public instruction in the ministry of the interior, professor of the university, and member of the academy; but he gave up all these appointments, reserving only the right to lecture, according to his pleasure, in the university of Berlin. To the leisure which he now enjoyed, we owe his incomparable *Darstellung der Alterthumswissenschaft*, and the translations from Horace, Homer, and Aristophanes, which are as spirited as skilful. His *Analecta*, one of the most scientific periodicals, he suddenly discontinued, and, from that time, published nothing more, being indignant at the censorship which had been established. His health had become broken, and his physician advised him to visit the south of Europe. In July, 1824, he arrived at Marseilles, where he died, August 8, of an affection of the lungs. The classical ground of the ancient Massilia covers the bones of him who may be said to have first elevated philology to a real science. The disciples of Wolf are numerous, animated with the independent spirit of their great master, and free from the trammels of a school. Wolf's face was noble, and expressed his high-minded character. Fred. Tieck (q. v.) made several marble busts of him. One of his pupils, professor Hanhart, in Basle, has published Reminiscences of Frederic Augustus Wolf (1825).

Wolf, Arnoldina, was born at Cassel, in Germany, in 1769. She lost her father, an officer of the Hessian government, early, but her mother took great care of her education. In her eighteenth year, she was attacked by the horrid disease called *scabies humida*, and passed twenty-six weeks almost entirely without sleep. On one occasion, in the midst of her severe sufferings, she repeated all the songs which her memory could furnish; after which she composed a poem extempore. Five other poems followed in a similar way. A friend published them in 1788, and a second edition was soon called for. Becoming entirely deprived of strength, she fell, after six months, into a state of apparent death, in which she retained the exercise of no sense except that of hearing, and was conscious only of the fear of being buried alive. After four weeks, she began to recover, and was eventually restored to full health. She married, in her twenty-third year, a Mr. Wolf, became the mother of nine children, and died in 1820. Doctor Wiss, of Smalcalden, where she lived, published the poems of Arnoldina Wolf (1817), with a history of her disease.

Wolfe, James, a distinguished English general officer, was the son of lieutenant-general Wolfe, and was born at Westerham, in the county of Kent, in 1726. He applied himself early to the profession of arms, for which he was particularly adapted by the bravery, elevation and decision of his character. Even at the early age of twenty, he attracted attention by his military skill, and, during the whole of the German war, was actively employed, and regarded as a great and rising soldier. At length he was called into high and independent command by the first Mr. Pitt, who appointed him to the charge of the important expedition against Quebec. Here he, singly and alone in opinion, formed that great, hazardous, but necessary plan of operation, which drew out the French to their defeat, and insured the conquest of Canada. Having surmounted all obstacles, he encountered the enemy on the heights of Abraham, where, in the moment of victory, he received a ball in the wrist, and another in the body, which rendered it necessary to bear him off to a small distance in the rear. There, roused from fainting in the agonies of death, by the sound of "They run," he eagerly asked, "Who run?" and being told the French, and that they were defeated, he exclaimed, "Then I thank God, and die contented," and almost instantly expired. This event took place Sept. 13, 1759, in the thirty-fourth year of his age. A national monument is erected to the memory of this officer in Westminster abbey. West's picture of the Death of Wolfe has become generally known by Woollett's admirable engraving. The Life and Correspondence of General Wolfe was published in London, in 1827 (2 vols., 8vo.)

Wolfe, Charles, a young Irish divine, of great poetical talent and much promise, was born in Dublin in 1791. His mother, removing to England on the decease of his father, placed him at Hyde abbey school, in Winchester, where he remained till 1808, when the family returned to Ireland. The following year he entered Trinity college, Dublin, and soon acquired distinction by his abilities and assiduity, which were eventually rewarded by a scholarship. Having taken orders, he obtained the curacy of Castle Caulfield, in the diocese of Armagh; but the active labor in which the superintendence of a large and populous parish involved him, combined with a disappointment of a tender nature, to make rapid inroads upon a constitution naturally far from robust, and unequivocal symptoms of consumption displayed themselves. After lingering till the winter of 1822, he died about the end of February, in the following year. The composition which has given him considerable posthumous celebrity, is his Ode on the Death of Sir John Moore, commencing

"Not a drum was heard,"

which lord Byron pronounced "the most perfect ode in the language." Besides this piece, which first appeared anonymously in an Irish newspaper, Mr. Wolfe was the author of several minor poems of great beauty. His Remains were published at Dublin (2 vols., 1825), with a notice of his life.

Wolfenbüttel; a principality of Germany. In a wider sense, Wolfenbüttel formerly comprised the possessions of the elder line of the house of Brunswick, or Brunswick-Wolfenbüttel, in the circle of Lower Saxony (see *Brunswick*); in a narrower sense, that part of the abovementioned region which now forms the districts of Wolfenbüttel, Schöningen, Harz and Weser. The town of Wolfenbüttel, till 1754 the residence of the dukes of Brunswick, lies in a low, marshy district, on the Oker, thirty-seven miles southeast of Hanover; lat. 52° 10′ N.; lon. 10° 40′ E. Its fortifications have been demolished. Population, 5810. There is here an old ducal castle, an arsenal, and a celebrated library, containing 10,000 manuscripts, and a great number of the early impressions of printed works: the whole number of volumes is stated to be nearly 200,000. The second volume of Ebert's work on Manuscripts (*Zur Handschriftenkunde*), published at Leipsic in 1827, contains a catalogue of the Wolfenbüttel manuscripts.

Wolff, Pius Alexander, and his wife; two of the most distinguished and accomplished theatrical performers whom Germany has produced. After the stiff and showy mannerism, the conventional pathos, the declamatory rather than dramatic performance of the French, particularly in the higher drama, had given place, in Germany, to a careful imitation of reality, or to noise and violence in the expression of emotion, and every one thought himself intended for an actor, if he had an imposing figure and sonorous voice, the true genius of dramatic art arose, awakened particularly by Göthe at Weimar, and by the union of thought and feeling, of the strength of nature, with the regulated tone of art, as well as by the subordination of reality to ideality, showed the true aim of the actor. The stage at Weimar was adorned by a number of masterly performers, among whom was Wolff. He was born about 1782, at Augsburg, received a very good education, and went upon the stage animated by the idea that it is the actor's duty to reproduce the conceptions of the poet, to conceive his creations in their whole spirit, and even to catch the tone of the time in which the scene is laid. In 1804, he became attached to the Weimar theatre, developed his talents in a constant intercourse with Göthe and Schiller, subsequently went to Berlin, and died in 1828. He early excelled in tragedy, and subsequently played also in comedies. He was himself a dramatic writer, and the author of Cæsario, a comedy; Duty for Duty, a melo-drama; the Dog of Aubry; Preciosa, with music by Weber, and other works.—His wife, whom he married in Wiemar, and whose maiden name was Malcolmi, is still living, and has sustained the reputation of a superior actress.

Wolfgang, St., one of the early Christian missionaries, was born in Suabia. He studied at Würzburg (q. v.), under Stephen, a teacher from Italy, went to Treves with the archbishop of that city in 956, and instructed children in Christianity. He subsequently lived for some time with bishop Bruno, of Cologne, brother of Otho I, emperor of Germany, refused all the advantages which this connexion offered, retired to a convent, was ordained a priest by St. Udalrich, and, in 972, went to preach the gospel to the Hungarians. In 974, he was elected bishop of Ratisbon. He held the bishopric during twenty years, and endeavored to sow the seeds of religion and knowledge among the rude tribes with whom he lived. He died Oct. 30, 994. The Catholic church celebrates his festival on the anniversary of his death. There is a paraphrase of the psalm called *Miserere* by saint Wolfgang.

Wolfgang, prince of Anhalt, was born in 1492, and began to reign at the age of sixteen years. His court was at Cöthen. In bodily strength and dexterity, and chivalrous character, this prince had hardly his equal. His temper was bold and lively. In 1521, when Luther made his defence at Worms, before the emperor and diet, Wolfgang became his friend and disciple. During the persecutions of the Protestants, he declared that he "should prefer to clean boots, to leave his country and people, and to go off on foot, rather than to become untrue to the gospel." He was one of those who signed and presented, in 1530, the Confession of Augsburg (q. v.), at the diet of Augsburg. When Charles V and Ferdinand, at the instigation of the papal legates, endeavored to oblige the Protestants by threats to give up their preaching, and join in the forms of the Roman Catholic worship, prince Wolfgang and the margrave George stepped up to the emperor, and firmly declared that "they would remain obedient to the emperor if he would leave them undisturbed in the exercise of their religious faith; but, before they would disown God and his gospel, they would submit to lose their heads." Wolfgang was one of the founders of the Smalkaldic league (q. v.), and Luther used to call him, on account of his many journeys for the promotion of peace, the *legate of God*. Wolfgang was invited to Eisleben by count Mansfeld. Luther also repaired thither, and died there, Feb. 18, 1546. When the war broke out, Wolfgang took part in the campaign which ended with the battle of Mühlberg. (q. v.) The emperor Charles V now put him under the ban of the empire, on Jan. 12, 1547, when he was at his castle in Bernburg, and gave his territories to one of his Spanish favorites. Wolfgang, on receiving the news of his outlawry, mounted his horse, and rode through the town towards the gate, singing Luther's celebrated hymn,

Eine feste Burg ist unser Gott
(A castle firm is our God).

He then retired into the Hartz mountains. In 1552, he was reinstated in all his rights. At the age of seventy years, he resigned the government to his cousins, but continued his care for schools and churches. He was the founder of the reformation in Anhalt (q. v.), being assisted by his learned and wise cousin, George, who had been consecrated bishop by Luther and others, and had often preached. Wolfgang, for the last fifteen years of his life, kept his coffin in his sleeping chamber, with the inscription, "To me, to live is Christ, and to die is gain." (*Phil.* i, 21.) He died unmarried in 1566, and was buried in Zerbst, in the church of St. Bartholomew.

Wölfl, Joseph, one of the most accomplished piano-forte players of his age, was born at Salzburg, in 1772, and was instructed by Mozart and Haydn. His uncommonly large and flexible hand was of great assistance to him. Mozart was much attached to him. At the age of eighteen years, he became chapel-master to the Polish count Oginski. The count lost his fortune when the Polish revolution broke out, in 1794, and, in 1795, Wölfl went to Vienna, and wrote several operas. In 1801, he went to Paris, where he obtained universal applause, and wrote for the *théâtre comique* an opera called *L'Amour romanesque*. In 1805, he went to England, where he died in 1812. The following anecdote, from Gerber's *Tonkünstlerlexikon*, shows his great skill. Being about to give a concert in Dresden, and the orchestra being assembled for rehearsal, there was no piano ready. At last one was brought, but tuned half a tone too low. In order not to detain the orchestra, he sat down to the instrument, and calmly played in C sharp the concert which was written in the C key, with perfect precision, purity and readiness. He composed operettas, concerts, and many other musical pieces.

Wolfram; an ore of tungsten. (See *Tungsten.*)

Wolfram von Eschenbach. (See *Eschenbach*, and *Wartburg*.)

Wolga, or **Volga** (the Russian *w* having the sound of the English *v*); a river of Russia, which has the longest course, and, with the exception of the Danube, the largest volume of water of any river in Europe. It is upwards of 2600 miles in length, and flows into the Caspian sea about fifty miles below Astrachan, by more than sixty branches. The Wolga rises in the government of Tver, from a number of lakes ninety-five miles above the town of Tver, at which place it is navigable. After receiving the Oka above Novgorod, and the Kama below Kazan, it becomes a considerable stream. During a great part of the year, it is shallow; but after the melting of the ice and snow in spring, its waters swell so much about May and June, as to overflow the banks. At this period, large vessels can come up to Astrachan. The country on the river is throughout fertile. By canals it is connected with the Neva and the Northern Dwina, thus affording a communication between the Caspian and Baltic, and Caspian and White seas. The river abounds in fish; and upwards of 10,000 boats are employed in the fishery. The common sturgeon and the beluga (see *Sturgeon*) afford the caviar and isinglass of commerce. Seals also ascend the river from the Caspian sea, and are taken by the fishermen.

Wolke, Christian Henry, born in 1741, in Jever, in Germany, studied at the universities of Göttingen and Leipsic for six years, and, in 1770, formed the plan of a school, in which the pupils should be educated conformably to nature. This plan brought him into connexion with Basedow (q. v.), with whom he wrote, from 1770 to 1773, an elementary work for the purposes of education. Wolke subsequently took part in Basedow's Philanthropin (see *Schools*), at Dessau, where he continued until 1801. He then went to Petersburg, and afterwards to Leipsic; lived from 1805 to 1814 in Dresden, and the rest of his life in Berlin, where the society for the cultivation of the German language was established mainly by his endeavors, in 1814. Of his numerous writings, many relate to education, and contain, among other subjects, directions for an education conformable to nature; others relate to the purification of the German language. He also published, in 1804, a collection of poems in the Lower Saxon dialect (q. v.), in order to show its harmonious character. But his chief work is Introduction to the general Language of Germany, to facilitate the Knowledge and Correction of at least 50,000 incorrectly formed German Words, and to save the Learner from a great Loss of Time and Money (1812). By ascertaining the roots of German words, he strove to determine their correct form, and to remove unnecessary letters, as well as those words which have been adopted from foreign languages into the German. This work is the fruit of long study, and contains much that is valuable, though the public may differ from him on many points. It is a book of much interest to the etymologist. His books for children, written in his new-fashioned language, could not well become useful. He died in Berlin, in 1825.

Wollaston, William, an eminent writer on ethics and theology, was born at Cotton Clanford, in Staffordshire, in 1659. He studied at Sidney college, Cambridge, and entered into holy orders. In 1688, the death of a relation put him in possession of considerable landed property, when he removed to London, and resided in Charter-house square. His marriage, shortly after, with a lady of considerable fortune, having rendered him independent, he devoted his time to literary researches. His work, entitled the Religion of Nature delineated, procured the writer a distinguished station among the philosophers of the last century. His death took place in 1724.

Wollaston, William Hyde, M. D. and F. R. S., a distinguished philosopher, born in 1766, died Dec. 22, 1828. Having received his academical education at Cambridge, he proceeded M. D. in 1793, and attempted to practise as a physician at Bury St. Edmunds, but with so little success, that he left the place in disgust, and removed to London. Soon after his arrival in that city, he became candidate for a place of physician to St. George's hospital; but, failing in his attempt, he declared his determination never again to write a prescription, and turned his whole attention to the cultivation of natural science. Though almost every branch of science, at different times, occupied his attention, chemistry was that to which he seems to have been most ardently devoted; and it was by his investigations in that department of philosophy that he attained the most distinguished reputation. He was accustomed to pursue his chemical examinations on the smallest specimens of the substance which he was analysing; and he invented an ingenious method of determining the properties and constituents of very minute quantities of matter. He was endowed with bodily senses of extraordinary acuteness and accuracy, as well as with great general vigor of understanding, and had acquired a powerful command over his attention, and habituated himself to the most rigid correctness of thought and language. Among his inventions are his sliding rule, or scale of chemical equivalents (see *Equivalents, Chemical*); the goniometer, or instrument for measuring the angles of crystals; the camera lucida, &c.; and we are indebted to him for the discovery of two new metals, palladium and rhodium (see the articles), and of the malleability of platina. (q. v.) Doctor Wollaston was the author of a great number of communications to the Transactions of the Royal Society, of which he was a member, and of several articles in doctor Thomson's Annals of Philosophy, and other periodical works.

Wollastonite. (See *Tabular Spar.*)

Wöllner, John Christian von; notorious in the ignominious government of Frederic William II of Prussia, the successor to Frederic the Great. He was the son of a clergyman, was born in 1727, studied theology in Halle, became minister in a village near Berlin, in 1759; was appointed counsellor of finance to prince Henry of Prussia, as he had shown some knowledge of political economy, made a noble in 1786 by the above-mentioned king, and, after receiving several appointments, became minister of state in 1788. In this situation, he exercised the greatest influence over the weak-minded monarch, by winking at his debaucheries, and resorting to low arts, such as frightening him with pretended apparitions. He caused the king to issue the notorious "religious edict," which established intolerance and mysticism, so contrary to the spirit of the time, and particularly of the monarchy. The present king Frederic William III repealed this edict as soon as he ascended the throne, and dismissed this narrow-minded minister, who died in 1800, on one of his estates in Brandenburg. Wöllner was a member of several secret societies, including the Rosicrusians. (q. v.)

Wolodomir. (See *Wladimir.*)

Wolsey, Thomas, cardinal, an eminent minister of state under Henry VIII, is said to have been the son of a butcher at Ipswich, where he was born in 1471. After receiving a grammatical education, he was sent to Magdalen college, Oxford, of which he was elected fellow. Being appointed master of a grammar-school dependent on the college, he had three sons of the marquis of Dorset under his care—a circumstance which induced that nobleman to present him with the living of Limmington, in Somersetshire, and, while here, he was put in the stocks in consequence of a drunken frolic. Although his conduct was by no means regular, his manners and appearance recommended him to Dean, archbishop of Canterbury, who made him his domestic chaplain. On the death of that prelate, he served sir John Nanfan, governor of Calais, in the same capacity, by which patron he was recommended to Henry VII, who made him one of his own chaplains; and, in consequence of his able and expeditious conveyance of a despatch to the emperor at Bruges, he was rewarded with the deanery of Lincoln. On the death of Henry VII, he was introduced by Fox, bishop of Winchester, to Henry VIII, whose favor he courted so successfully, that he shortly obtained the first place in the royal favor, and became uncontrolled minister. His progress in advancement was very rapid. In 1510, he was introduced into the privy-council, made reporter of the star-chamber, registrar, and afterwards chancellor of the garter. Ecclesiastical preferments were also profusely heaped upon him, of which the principal were the bishoprics of Tournay and Lincoln, in 1513, and the archbishopric of York in 1514. The following year, the pope, to ingratiate himself with Henry, elevated him to the dignity of cardinal. His nomination to be the pope's legate *a latere* completed his ecclesiastical dignities, by exalting him above the archbishop of Canterbury. Naturally proud and ostentatious, no English subject, either lay or ecclesiastic, ever took so much state upon himself. He entertained a train of eight hundred servants, many of whom were knights and gentlemen. In 1515, archbishop Warham, whom he had much annoyed by his ambition, resigned the office of chancellor, to which

Wolsey was appointed; and his administration in that capacity did him much credit. His legatine power, on the contrary, was exercised with great severity and oppression, and his eagerness for acquirement was unbounded. At the time when the celebrated rivalry between the emperor Charles V and Francis I rendered the friendship of Henry of great importance, Wolsey was treated with the greatest respect by both sovereigns, receiving pensions from each, as well as a third from the pope. He ultimately, however, favored the side of Charles, who settled upon him the revenues of two bishoprics in Spain, and flattered him with hopes of the papal chair, which induced him to involve Henry in a war with France. Insatiable in the pursuit of ecclesiastical emolument, in 1519, he obtained the administration of the see of Bath and Wells, and the temporalities of the abbey of St. Alban's, and afterwards enjoyed, in succession, the rich bishoprics of Durham and Winchester. By these means, his revenues nearly equalled those of the crown, part of which he expended in pomp and ostentation, and part in laudable munificence for the advancement of learning. He founded several lectures at Oxford, where he also erected the celebrated college of Christ-church. He also founded a collegiate school at Ipswich, and built a palace at Hampton court, which he presented to the king; but much of this was done by the seizure of minor religious establishments, for which he obtained papal authority. The critical affair of the divorce of queen Catharine was one of the first steps to his fall, as he was thought by the king to assist the delays of the court of Rome. The attachment of Henry to Anne Boleyn still further involved him; and, at length, in 1529, the dukes of Norfolk and Suffolk were sent to require the great seal from him, and he was ordered to quit York place, his palace in London, and retire to Esher, all his rich plate and furniture being seized in the king's name. After some suspense, owing to some remnant of attachment on the part of Henry, articles of impeachment were exhibited against him in parliament; but he was defended so vigorously by his retainer Cromwell, that they were withdrawn. His enemies then indicted him, under the statute of provisoes, for procuring bulls from Rome, which was made the grounds of a sentence of forfeiture. After the intended effect was produced of making him resign York palace and its riches to the king, he was granted a full pardon, and part of his revenues. In 1530, he was ordered to remove to his diocese of York, where he passed part of the year at his mansion of Cawood, until once more, on the first of November, in the same year, he was arrested for high treason, and set out, under custody, for London. Indisposition of body, however, combining with mental distress, he was obliged to stop at Leicester, where he was honorably received at the abbey. His disorder increasing, a few days brought him to his end, on the 28th of November, 1530, in the sixtieth year of his age. Shortly before his decease, he exclaimed to the officer appointed to conduct him, "Had I but served God as diligently as I have served my king, he would not have given me over in my gray hairs." There has been considerable disposition in later writers to vindicate the character of this minister; and it must not be forgotten that, in the reign of Henry VIII, who had basely murdered him, of Mary, the daughter of the much-injured Catharine, and of Elizabeth, whose mother (Anne Boleyn) was the chief instrument of his downfall, no justice could be expected to be rendered to the better traits of his mixed character. If he was loose in his morals, grasping in his ambition, and rapacious, he was liberal, and even profuse, towards his dependants and in his patronage of letters. He was enlightened far beyond the period in which he lived, and not only by fostering learning, but by causing many reforms to be made in the church, he prepared the way for that more extensive though imperfect measure of reformation which took place in England after his death. As a diplomatist, it is difficult to say whether his abilities or industry was the most remarkable. To him England is indebted for the first notion of a vigorous police, and for a regular system in the administration of justice; and, in justice to his memory, it should be observed that, while his influence prevailed with Henry VIII, the ferocity of that royal butcher was kept in check. We have a Life of Wolsey by his gentleman usher Cavendish (new editions, with notes by Singer, 1827), and an account of the Life and Administration of Cardinal Wolsey, by Galt (1812, 4to., and 1817, 8vo.).

Wolstonecraft, Mary. (See *Godwin, Mary.*)

Woltmann, Charles Louis von, was born at Oldenburg, in 1770, and died in Prague, in 1817. He has written many books. His History of the Peace of

Westphalia is a work of great merit, and far superior to his other productions.

Wolverhampton; a borough and market town of England, county of Stafford, with numerous coal mines. Most of the farmers in the neighborhood have their forges, where they work when not employed in the field. Two canals (the Staffordshire and Worcestershire Grand Trunk, and Birmingham canal) pass in the immediate vicinity. It is said to have derived its name from *Wulfruna*, wife of the duke of Northampton, who built a monastery here in 996; whence its name of *Hampton* was changed to *Wulfrun's Hampton*, since corrupted into *Wolverhampton*. By the reform act of 1832, it was constituted, with Sedgeley, a borough, returning two members to parliament. Population, with Sedgeley, in 1831, 67,508; sixteen miles south of Stafford.

Woman. Among savages, a slave, in the harem of the luxurious, but half-civilized East, a voluptuous toy, in the more refined countries of Christendom alone is woman the equal and companion of man. It is in the Christian home only that woman reigns—the mother, sister, wife and friend. It is a common remark that, in proportion as civilization advances, the respect and attention paid to the weaker sex are increased. In the savage state, the woman nurses her young, prepares the food, and carries the burdens of her master, whom she follows to war and the chase, shares all the privations and hardships of his precarious life, without participating in its excitements and pleasures, and serves and suffers without being thanked, rewarded or pitied. In a more advanced stage of society, as in ancient Egypt and India, the condition of woman, in private life, is that of an humble dependant, respected as a mother, but entirely subject to the will of the husband, and, in the higher castes, required to sacrifice herself upon his tomb. In China, the women of the lower classes are allowed to appear in public without restraint; but all the hard labor is put upon them, while the husband does the lighter work: the wife drags the plough, and the husband sows the seed. In the higher classes, the sex is subjected to a seclusion amounting almost to imprisonment. The temples are the only places to which they have free access. Elsewhere, they are not permitted to lose sight of their inherent inferiority: inhabiting a distinct set of apartments, not permitted to take their meals at the same table as their husbands, receiving no intellectual instruction, the degradation imposed (as is supposed) by nature is perpetuated by these laws which repress all their energies of mind and heart. With the two most polished and interesting nations of the ancient world, the female sex was on a very different footing, but in both less highly respected and less justly estimated, than with the polished nations of modern times. Greece, situated on the borders of Asia, then the seat of civilization, presents a singular mixture of Oriental manners with European institutions and habits. The condition of the Grecian women accordingly resembles this general condition of society, in a union of something of Eastern restraint and seclusion, with somewhat of the moral virtues and brilliant qualities of Western civilization. Among the Greeks, we find some noble examples of womanly heroism, of conjugal love, and sisterly affection, but nothing of that spiritualized respect for the female sex which prevailed in the middle ages, and nothing of that spirit of gallantry which characterized more modern times. Woman was not, in Greece, the ornament and refiner of society, the companion and friend of man. Homer represents women simple, noble and virtuous; Sophocles gives them something of a heroic cast; and, in Euripides, we find some models of female purity and lofty devotion; but no where do we discover that adoration of female beauty which is expressed in modern poetry. (See Schlegel, *Upon the Representation of the Female Character in the Greek Poets.*) The Grecian women were secluded in their own apartments, and passed their time chiefly in directing the labors of their female slaves. They rarely or never appeared in the company of the men; and this separation was carried so far that the Grecian houses were usually divided into two parts, in which the two sexes had distinct mansions assigned them. The part assigned for the women, the *gyneceon*, or *gyneconitis*, was the farthest from the street, and usually in the uppermost rooms. The unmarried women were subjected to particular restrictions, and were almost entirely confined at home. When the women went abroad, or appeared in public, they covered their faces with veils, and were generally accompanied by attendants. They were not permitted to appear at the theatre, unless at the representation of tragedies; but they formed religious processions, and took part in religious festivals. The want of cultivated females of virtue was supplied by the *hetæræ*, who were often highly distinguished for their talents and accomplishments. (See *Hetæra*.) Among the celebrated women of this class are Aspasia, the mistress of Pericles, Lais, Phryne, and others. (See Böttiger's *History of the Female Sex*, in the 2d and 3d volumes of the *Attisches Museum*.) The Lacedæmonian women observed fashions quite different from their neighbors: their virgins went abroad barefaced, while the married women covered themselves with veils; the former designing to get husbands, the latter aiming to keep those they had. The Spartan maidens, says Plutarch (Life of Lycurgus), exercised themselves in running, wrestling, throwing quoits, casting darts, that they might be more healthy and vigorous; and they were also accustomed to dance naked at solemn feasts and sacrifices. When, however, the laws of Lycurgus were neglected, and the Spartans degenerated from the strict virtue of their forefathers, these practices contributed to render the prevailing licentiousness more universal. The Romans were, in many respects, in advance of their more polished neighbors in the treatment of their women. The Roman women appeared more in society: they were allowed to be present at feasts and entertainments, and at public spectacles, and, in general, associated more with men than the Grecian women. They took a more active part in public matters; and the institution of the vestal virgins has no example in the manners of the Greeks. Hence we find many models of true feminine greatness among the Roman women. In the period of the republic, they lived, however, considerably retired, occupied with domestic labors, and the education of their children, and distinguished for simplicity of appearance and rigid virtue. But with the increase of wealth, luxury and corruption, a great change took place; and, if Cornelia may be considered the representative of free and virtuous Rome, Messalina must be regarded as the emblem of the polluted epoch of the empire. The influence of Christianity gave woman a new station in society, broke her chains, and released her from the odious and degrading restrictions in which she had almost become the soulless thing which she had been represented to be. As man ceased to be a mere citizen of his own country, and felt himself to be a citizen of the world, so woman was restored to her natural rights. Other causes coöperated with the spirit of Christianity to establish a just and true equality of the sexes. The German or Teutonic nations were the first who led the way in this revolution; and Tacitus remarked upon the estimation in which the female sex was held among them. The age of chivalry shows the effect of these two influences,mutually contributing to each other's developement; and the whole of Europe soon experienced the operation of these causes. In fact, the very peculiarities of the Christian religion, its spirit of love, of tenderness, and of charity, wholly unknown to the ancient nations, led to a submission of physical force and intellectual vigor to feelings of kindness and affection. "In every age and country," says Gibbon, "the wiser, or at least the stronger, of the two sexes has usurped the powers of the state, and confined the other to the cares and pleasures of domestic life. In hereditary monarchies, however, and especially in those of modern Europe, the gallant spirit of chivalry, and the law of succession, have accustomed us to allow a singular exception; and a woman is often acknowledged the absolute sovereign of a great kingdom, in which she would be deemed incapable of exercising the smallest employment, civil or military. But, as the Roman emperors were still considered as the generals and magistrates of the republic, their wives and mothers, although distinguished by the name of Augusta, were never associated to their personal honors; and a female reign would have appeared an inexpiable prodigy in the eyes of those primitive Romans who married without love, or loved without delicacy and respect." The exaggerated spirit of adulation which prevailed in the age of chivalry, was yet far from giving the female sex its true position; and the age of frivolous gallantry which succeeded it, was a natural result of the former. It is by observing a proper medium between servitude and deification, by treating the sex as women, and not as slaves or goddesses, by cultivating their minds and hearts, as well as by adorning them with the graceful accomplishments, that our own times have, in some measure, restored this part of our race to their rights and duties. (Consult, on this subject, Alexander's *History of Women* (2 vols., 4to., 1779); and Ségur, *Les Femmes* (3 vols., 1802); see, also, our articles *Husband and Wife*, *Marriage*, *Polygamy*, and *Divorce*.)

Woman, in physiology. Besides the difference of the sexual organs, the woman exhibits other peculiar characters, which distinguish the sexes. In the female, the head is smaller, the chest narrower, the pelvis broader, the limbs more delicately formed and more rounded, and the gait peculiar, on account of the breadth of the pelvis. The skin is soft, the hair of the head finer and longer, the muscular system little developed, the voice an octave higher than that of the male, and the nervous system predominating: their sensibility is consequently greater than that of the other sex. The rounded form and brilliant whiteness which characterize females are owing to the peculiarity of their lymphatic and cellular systems; and, their sanguineous system being less vigorous than in man, they are less liable to acute inflammations. Born to feel and to inspire the kind and tender affections, they are exempt from the gloomy and fierce passions which characterize the bilious temperament; and love, jealousy, and maternal affection, are the deepest springs of emotion in the female heart. Their delicate and peculiar organization modifies the general course of disease with them, and renders them liable to some from which the other sex is exempt. The period of puberty is more often attended by disease in the female sex. It is characterized by the developement of the breasts, and other physical changes, together with a general revolution in the tastes and feelings of the individual. (See *Puberty*, and *Catamenia.*) Ripe for the burden of maternity, the woman becomes a mother only through sufferings and pangs. The mother is exposed to yet new maladies as a nurse; and, when nature calls the child to other sources of nourishment (see *Weaning*), to new cares and precautions for herself and her infant. Having passed these successive periods of life, at the age of forty-five or fifty, another change of the system succeeds, attended with so many dangers, that this epoch has received the name of the "critical age." The physical changes which now take place are often accompanied with an unfavorable moral change, and both combine to render more dangerous the maladies to which this period is particularly liable. Great care should now be taken to be warmly clothed, to avoid violent excitements, to enjoy pure and wholesome air; and, this period passed, the health becomes confirmed, and life is often prolonged to an advanced age.

WOMB. (See *Uterus.*)

WONDERS OF THE WORLD, SEVEN. (See *Seven Wonders.*)

WOOD. (For the structure of wood, see the article *Plants;* for the use of wood as fuel, see *Fuel.*) We shall now give the character of some of the principal sorts of wood used in the arts. The part preceding the account of the fancy woods is taken from Bigelow's Technology.—*Oak.* Numerous species of the oak-tree are found in the U. States. They are generally distinguished for great strength, but are coarse-grained and prone to warp and crack, under changes from moisture to dryness. The live oak of the Southern States (*quercus virens*) is prized in ship-building beyond any native timber. The white oak (*quercus alba*) is employed for the keels, side-timbers and planks of vessels, also for frames of houses, mills, and machinery requiring strength; for wagons, parts of carriages, ploughs, and other agricultural instruments. Large quantities are consumed for the staves and hoops of casks, for which they furnish one of the best materials. The bark of the black oak (*quercus tinctoria*) furnishes the *quercitron* used by dyers. Most of the species of oak are employed in tanning, and they all furnish a valuable fuel.—*Hickory*, or *Walnut.* The wood of the different species of native walnut or hickory (*juglans* or *carya*) is eminently distinguished for weight, tenacity and strength. It has, however, important defects. It warps and shrinks greatly, decays rapidly when exposed to the weather, and is very liable to the attacks of worms. On these accounts, it is never used for house or ship building, but is chiefly employed for minor purposes, where strength is the chief requisite, as in the teeth of mill-wheels, screws of presses, handspikes, capstan bars, bows, hoops, and handles of tools. As fuel, the hickory stands at the head of native trees, and commands a higher price than any other wood.—*Ash.* The white ash (*fraxinus Americana*), and some other species, are of great utility in the arts. Ash wood is strong, elastic, tough and light, and splits with a straight grain. It is also durable, and permanent in its dimensions. It furnishes the common timber used in light carriages, for the shafts, frames, springs, and part of the wheels. Flat hoops, boxes, and the handles of many instruments, are made of it. It is almost the only material of oars, blocks of pulleys, cleats, and similar naval implements, in places where it can be obtained.—*Elm.* The common American elm (*ulmus Americana*) is valued for the toughness of its wood, which does not readily split. On this account, it is chiefly used for the naves, among us commonly called *hubs*, of carriage-wheels.—*Locust*. The common locust (*robinia pseudacacia*) is one of the hardest, strongest, and most valuable of our native trees. The larger pieces of its timber are used in ship-building, and the smaller pieces are in great request to form the treenails* or pins which confine the planks to the timbers. This tree is liable, in the Northern States, to be perforated by an insect, so that it is often difficult to procure sound pieces of any considerable size. Locust wood is exceedingly durable, when exposed to the weather, and forms excellent fuel.—*Wild cherry-tree*. The wood of this tree (*prunus Virginiana*) is of a deep color, hard, durable, and, when properly seasoned, very permanent in its shape and dimensions. In the manufacture of cabinet work, it is much used as a cheap substitute for mahogany. On the western rivers, it is sometimes used in ship-building.—*Chestnut*. The American chestnut (*castanea vesca*) is a large tree of rapid growth. Its wood is coarse and porous, very liable to warp, and seldom introduced into building or furniture. It is chiefly used for fencing stuff, to which use it is fitted by its durability in the atmosphere. Chestnut is an unsafe fuel, in consequence of its tendency to snap, and throw its coals to a distance.—*Beech*. The wood of the red beech (*fagus ferruginea*) is liable to decay when exposed to alternate moisture and dryness. It does not, however, readily warp, and, being smooth-grained, it is used for some minor purposes, such as the making of planes, lasts and card-backs. It forms a very good fuel.—*Bass-wood*. The American linden or bass-wood-tree (*tilia Americana*) produces a fine-grained wood, which is very white, soft, light and flexible. It is sometimes employed for furniture, but its chief use is to form the panels of coach and chaise bodies, for which its flexibility makes it well suited.—*Tulip-tree* (*liriodendron tulipifera*). The boards of this tree are sold under the name of *white-wood*, and erroneously under that of *poplar*. Its wood is smooth, fine-grained, easily wrought, and not apt to split. It is used for carving and ornamental work, and for some kinds of furniture. In the Western States, where pine is more scarce, the joinery, or inside work of houses, is commonly executed with this material, and sometimes the outer covering. In common with bass-wood, it forms an excellent material for coach and chaise panels.—*Maple*. The rock maple (*acer saccharinum*), and several other species, afford wood which is smooth, compact and hard. It is much used for cabinet furniture, and is a common material for gun-stocks. The wood in some of the old trunks is full of minute irregularities, like knots. These, if cut in one direction, exhibit a spotted surface, to which the name of *bird's eye* maple is given; while, if cut in another direction, they produce a wavy or shaded surface, called *curled* maple. This last effect, however, is more frequently produced by a mere serpentine direction of the fibres. The distinctness of the grain may be increased by rubbing the surface with diluted sulphuric acid. Maple wood forms a good fuel. It is not very lasting when exposed to the weather. The sap of the rock maple, and of one or two other species, yields sugar on being boiled.—*Birch*. The white or paper birch (*betula papyracea*) has properties similar to those of the maple, and is appropriated to the same uses. Its cuticle or outer bark is made, by the Indians, into canoes. The lesser white birch (*B. populifolia*) is a perishable tree of little value. The black birch (*B. lenta*), known for its aromatic bark, affords a firm, compact, dark-colored wood, much valued for furniture, and sometimes used for screws and implements requiring strength. The yellow birch (*B. lutea*) is applied to the same uses as the last, and makes good fuel.—*Button-wood*. The button-wood or plane-tree (*platanus occidentalis*) is, in some of the Northern States, improperly called *sycamore*. It is one of the largest inhabitants of the forest; and Michaux states that trees are found in the Western States which measure forty feet in circumference. This majestic tree is chiefly valuable for its shade, as the wood is perishable and prone to warp.—*Persimmon* (*diospyros Virginiana*). The heart wood is dark-colored, compact, hard and elastic, and is used, in the Southern States, for screws, shafts of chaises, and various implements.—*Black walnut* (*juglans nigra*). This tree is rarely found north of New York. Its heart wood is of a violet color, which, after exposure to the air, assumes a darker shade, and finally becomes nearly black. This wood, when deprived of its white part or sap, remains sound for a long time, even if exposed to air and moisture, and is not attacked by worms. It is very strong and tenacious, and, when seasoned, is not liable to warp or split. It is used, in the Middle and

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* Commonly pronounced *trunnels*.

Western States, for furniture, for gun-stocks, for naves of wheels, and, to a certain extent, in house and ship building. —*Tupelo.* Different species of the genus *nyssa* have received, in the U. States, a great variety of common names, among which *tupelo*, *pepperidge* and *gum-tree* are the most common. In Massachusetts, the name *hornbeam* is improperly applied to one of them. Their wood is smooth-grained, and remarkable for the decussation, or interweaving of the fibres, which renders it almost impossible to split the logs. This quality causes several of the species to be in demand for naves of wheels, hatters' blocks, and implements requiring lateral tenacity.—*Pine.* The American pines exceed all other native trees for the value and variety of their uses. The white pine (*pinus strobus*) has a very tall, straight trunk, the wood of which is light, soft, homogeneous, and easy to work. It is remarkably exempt from the common fault of timber—that of decaying in the open air, and of changing its dimensions with changes of weather. On these accounts, it is extensively employed for most of the common purposes of timber. In the Northern States, masts of vessels are commonly made of it. Frames of houses and of bridges are also formed of it; its defect of strength being more than balanced by its steadiness and durability. Its boards form almost the only material used in the Northern States for the joiner's work, or inside finishing of houses; and for this use it is exported to other countries. Ornamental carving is commonly executed on this material. The southern pitch pine (*pinus palustris*, L.) covers extensive barrens in the Southern States, and yields vast quantities of tar and turpentine. Its wood is appropriated to the same objects as that of the white pine, but is harder and stronger, and therefore preferred for planks, spars, floors, decks, &c. Many other species of pine exist on this continent, partaking qualities like those already described, but most of them harder than the white pine.—*Spruce.* The black and white spruce belong to the race of trees commonly called *firs.* They are both valuable, but the black spruce (*pinus nigra*) unites, in a peculiar degree, the qualities of strength, elasticity and lightness, together with the power of resisting exposure to the weather. It is much sought after for the smaller spars of vessels, such as the booms, yards and topmasts.—*Hemlock.* The hemlock-tree (*pinus Canadensis*) is inferior to the other firs in quality, though it grows to a large size. It is coarse-grained, often twisted, and cracks and shivers with age. It furnishes an inferior sort of boards, used in covering houses. Its bark is valuable in tanning.—*White cedar.* This tree (*cupressus thuyoides*) occupies large tracts denominated *cedar swamps.* The wood is soft, smooth, of an aromatic smell, and internally of a red color. It is permanent in shape, and very durable, and esteemed as a material for fences. Large quantities of shingles are made of it. It is a favorite material for wooden wares, or the nicer kinds of coopers' work.—*Cypress.* The cypress-tree of the Southern States (*cupressus disticha*) is light, soft and fine-grained, and, at the same time, elastic, with a considerable share of strength. It sustains heat and moisture for a long time without injury. In the Southern States, and on the Mississippi, it is much employed for fences, and for the frames, shingles, and inside work of houses. —*Larch.* The American larch (*pinus microcarpa*) is called *hackmatack* and *tamarack* in different parts of the Union. Its wood is strong, elastic and durable, and is highly prized, in places where a sufficient quantity can be obtained, for naval and civil architecture.—*Arbor vitæ.* This tree (*thuya occidentalis*) is of the middle size, and frequently called *white cedar.* The wood is reddish, fine-grained, very soft and light. It bears exposure to the weather with very little change, and is esteemed for the posts and rails of fences.—*Red Cedar* (*juniperus Virginiana*). The name of *savin* is in some places improperly applied to this tree. Unlike the white cedar, it grows in the driest and most barren soils. The trunk is straight, and knotted by small branches. The heart wood is of a bright-red color, smooth, and moderately soft. It exceeds most other native trees in durability, and is in particular request for posts of buildings, though it is difficult to obtain it of large size.—*Willow.* The most common kinds of salix or willow about our seaports are European species which have become naturalized. Their wood is soft, light and spongy. Willow charcoal is used in the manufacture of gunpowder. The osier, and some other species, with long, slender shoots, are extensively cultivated to form wicker work, such as baskets, hampers, and the external coverings of heavy glass vessels. —*Mahogany.* In the manufacture of cabinet furniture, mahogany (*swietenia mahagoni*) has taken precedence of all other kinds of wood. Its value depends not so much on its color as on its hardness, and the invaluable property of remaining constant in its dimensions, without warping or cracking, for an indefinite length of time. The same qualities which render it suitable for furniture have given rise to its employment for the frames of philosophical instruments, and of delicate machinery. Mahogany is imported from the West Indies and different parts of Spanish America.—*Boxwood.* The box-tree (*buxus sempervirens*) is imported from the south of Europe. Its wood is of a well-known yellowish color, hard, compact, smooth, tough, and not liable to crack. Musical wind instruments are commonly made of it; also mathematical measuring instruments. The handles of many tools, and various articles of turners' work, consist also of this material. Wood engravings are cut upon the end of the grain of box-wood.—*Lignum vitæ.* The wood of the *guaiacum officinale* is employed in the arts under this name. It is dark-colored at the heart, strong, exceedingly hard, and so heavy as to sink in water. It is impregnated with resin, and, on this account, durable in liquids. Handles of tools, boxes of gudgeons, wheels of pulleys, castors, balls, stopcocks, mallets, &c., are made of it. It is imported from the West Indies and South America.—We shall now give an account of some of the principal woods used in cabinet work, taken from the Library of Entertaining Knowledge.

Fancy Woods. Even at a comparatively early stage of the arts, mankind appear to have made use of the bright or variegated colors of wood, to give beauty both to their dwellings and their furniture. The temple built by king Solomon was overlaid, on the inside, with boards of cedar—"all was cedar; there was no stone seen"—and, among the most ancient specimens of ornamental furniture that are to be met with, we find that attempts have been made to heighten the effect by the contrast of various kinds of wood. Though, both in the materials and the designs, these are inferior to the productions of modern art, many of the cabinets which are still preserved have much higher claims to notice than their mere antiquity. In all these works, a veneer, or thin plate of the fancy wood, is laid down in glue upon a surface of a plainer description. This process is, of course, cheaper than if the whole work were made of the solid fancy wood. The beauty of fancy wood arises, in many sorts, from its being cross-grained, or presenting the fibres endways or obliquely to the surface. These different positions of the fibres, as well as their different colors in grained woods, give a clouded and mottled variety to the surface; and, when some of the parts are partially transparent, as is the case with fine mahogany, the surface gives out a play of different tints, as the observer shifts his place, or the light falls upon them, and, consequently, is reflected at different angles. When mahogany was first introduced as a cabinet timber, it seems to have been in the dark-colored, hard, and straight-grained trees, which are now used for chairs and other articles, in which the solid timber is preferred; and, on that account, mahogany was not much used in combination with other woods. When, however, its great value was known—the ease with which it can be cut, the improvement that varnish gives to its colors, the firmness with which it holds in glue, and the improvement which, when properly taken care of, it gains in time—it was found that good mahogany was much too valuable a timber for being used solid, and it began to be employed as the staple timber in veneering. Other foreign woods, some of them lighter and others darker, were employed for borders and ornaments; but mahogany was used for the body of the work; and when it came to be so used, a great revolution was effected in the art of cabinet-making. On the first introduction of mahogany, the same process was resorted to, that had before been practised with the walnut and other woods, and effect was sought to be produced by quartering panels, forming them of gyrony* of sectors, with the grain in opposite directions, and other fantastic and unnatural arrangements; but, in course of time, a better taste was introduced, and the object was to make the whole surface have the same appearance as if the work had been made solid out of the rich timber. This was one step toward the attainment of a purer style; but the continuity of the surface was still interrupted by ill-sorted additions. The breadth of the mahogany, which would in itself have been beautiful, was broken by bands and strings of other wood, without much regard to the harmony of the colors; and thus that which, with the veneer alone, would have been chaste and classical, was reduced to a piece of patchwork. The veneering, whether done in mahogany or any other wood, was, at first, very expensive. The veneers were cut by the hand; and thus the piece cut off was of unequal thickness in the different parts, the wood was mangled by the operation of cutting, and the finest pieces, which, as has been said, are cross-grained, or have the fibres across their thickness, were always in danger of being broken. It had been found that veneers, laid upon good bodies of timber, whether of the more coarse mahoganies or of any other kind, were better, in point both of beauty and of standing without warping, than solid timber; but the cutting of the veneers by the hand was very laborious, and wasted the timber, so that, though the plan was a good one, it was expensive. When the harder and more unmanageable species of fancy woods came to be used, the difficulty and expense were further increased; and though more beauty and variety were imparted to cabinet furniture, they were imparted at a corresponding increase of expense. Nor was it till the invention of machinery for the cutting of wood into veneers, by Mr. Brunel, that we had the full advantage of the beautiful art of veneering. The machinery used for this purpose consists of circular saws, driven by mechanical power; and they have so diminished the price of cutting veneers that the saving is immense. The quantity of veneer that can, by means of these machines, be sawed out of a given quantity of timber, is astonishing. Those who are reckoned respectable cabinet-makers do not, in general, wish to have more than eight or nine thicknesses out of the inch; but those who manufacture furniture for occasional sale, and are, in consequence, indifferent as to the quality of the timber, and the durability of their work, often have the inch cut into fifteen or sixteen thicknesses. Veneering in fancy woods has sometimes been compared to gilding and plating; but the process does not gain by the comparison, as the covering of one wood with another is a much nearer approach to solidity than the covering of one metal with another. While the cabinet article is kept in such a state that the glue is not dissolved, the covering of beautiful wood does not wear out; and thus, with a vast saving in the more costly material, there is the same durability as if nothing but that material had been used for the whole. There is another advantage in the use of fancy woods on the surface—the body of the article upon which the fancy wood is laid can be much better put together than if it had formed the external part of the article. Where that is the case, dovetails, or mortises, cannot be wedged without an external seam; but, in veneering, the body of the article can be put together with every degree of care and strength, and the veneer will hide the whole.—*Mahogany* is of universal use for furniture, from the common tables of a village inn to the splendid cabinets of a regal palace. But the general adoption of this wood renders a nice selection necessary for those articles which are costly and fashionable. The extensive manufacture of piano-fortes has much increased the demand for mahogany. Spanish mahogany is decidedly the most beautiful; but occasionally, yet not very often, the Honduras wood is of singular brilliancy; and it is then eagerly sought for, to be employed in the most expensive cabinet work. A short time ago, Messrs. Broadwood, distinguished English makers of piano-fortes, gave the enormous sum of £3000 for three logs of mahogany. These logs, the produce of one tree, were each about fifteen feet long, and thirty-eight inches wide. They were cut into veneers of eight to an inch. A new species of mahogany has been lately introduced in cabinet work, which is commonly called *Gambia*. As its name imports, it comes from Africa. It is of a beautiful color, but does not retain it so long as the Spanish and Honduras woods.—The wood most in use for cabinet work, next to mahogany, is *rose-wood*. The name of this species of wood is derived from its fragrance; and it has long been known to the cabinet-makers of England and France. It was first introduced, it is said, from the isle of Cyprus; though the great supply now comes from Brazil. The width of the logs imported into England averages twenty-two inches, so that it must be the produce of a considerable tree. The more distinct the darker parts are from the purple-rod, which forms the ground, the more is the wood esteemed. It is ordinarily cut into veneers of nine to an inch, and is employed, in this way, for all the larger furniture, such as tables, but solid for the legs of chairs, tables and cabinets.—*King-wood* is generally used for small cabinet works, and for borderings to those which are larger. It is extremely hard. The tree which produces it is small, as the sticks are seldom brought to England more than five inches wide and four feet long. Its color is of a chocolate ground, with black veins, sometimes running into the finest lines, and at others more spread over the ground, as in rose-wood. The botanical name of the tree which produces this wood is not known.

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* A term of heraldry, in which a shield is formed in sectors from the centre.

It comes from Brazil. And here we should remark the exceedingly imperfect state of our knowledge with regard to the species of trees which produce the fancy woods, so extensively used in cabinet work. The attention of botanists who have described the productions of South America and Australasia, from which these fine woods come, has not been directed to this point; and the commercial dealers in these woods have paid no regard to it.—*Beef-wood*, principally used in forming borders to work, in which the larger woods are employed, is intensely hard and extremely heavy. Its color is a pale red, not so clouded as mahogany. The timber arrives in England in logs of about nine feet long, by thirteen or fourteen inches wide. The tree which produces it is not known in botanical description, but it is a native of New Holland.—*Tulip-wood* would appear to be the produce of a tree little exceeding the character of a shrub; for it arrives in sticks of about five inches diameter, seldom more than four feet in length. It is very hard, and of a clouded red and yellow color. Its principal use is in bordering, though it is employed in smaller articles, such as caddies and ladies' work-tables.—*Zebra-wood* is the produce of a large tree, and is received in logs of two feet wide. It is a cheap wood, and is employed in large work, as tables. The color is somewhat gaudy, being composed of brown on a white ground, clouded with black, and each strongly contrasted; as its name imports, derived, as it is, from the colors of the zebra.—*Coromandel-wood* is used in large works, like zebra and rose-wood. It is inferior to rose-wood in the brilliancy and division of its colors, having a dingy ground, and sometimes running into white streaks. The tree which produces it is of a large size. —*Satin-wood* is well known for its brilliant yellow color, with delicate glowing shades. It is now not much used in cabinet work. The timber arrives in logs two feet wide, and seven or eight feet long.—*Sandal-wood* is of a light-brown color, with brilliant waves of a golden hue, not unlike the finest Honduras mahogany. It is about the same size as satin-wood.—*Amboyna-wood* is now very much used in cabinet work. It is of various colors, and the shades are generally small. It arrives in logs of two feet wide. —*Snake-wood* is extremely hard, of a deep-red color, with black shades. It is principally used for bordering and small work.—*Hare-wood* something resembles satin-wood in the arrangement of its waves, but its color is different, being of a light-brown ground.—*Botany bay oak* forms very beautiful furniture. The ground is a uniform brown, with large dark blotches.—*Ebony* (q. v.) is also much used. Of the several cabinet-makers' woods bearing this name, there are the African cliff ebony, which is black, with a white spot; and the spotted ebony, a very beautiful wood, and extremely hard (more so than the common ebony), of which the ground is black, with brown and yellow spots.—*Acker-wood* is the produce of a large tree, and is of a cinnamon color.—*Canary-wood* is of a golden yellow.—*Purple-wood*, which has been lately introduced, is of a purple color, without veins. This appears to be the produce of a thorn of tropical countries, being only four inches wide. These three woods have been little used in furniture, but have been lately employed in mosaic floors.—*Bird's-eye maple* (its appearance is described in its name), which has also been so employed, is a narrow and long wood.—*Calamander-wood.* There is a very beautiful wood of this name growing in the island of Ceylon. The wood is very hard and heavy, and of singularly remarkable variety and admixture of colors. It is very difficult to describe this; nay, impossible to convey to those who have not seen it an idea of the manner in which the shades run into one another. The most prevailing of these is a fine chocolate color, now deepening almost into absolute black, now fading into a medium between fawn and cream colors. In some places, however, the latter tint is placed in more striking, though never quite in sudden, contrast with the richest shades of the brown. The variations are sometimes displayed in clustering mottles, sometimes in the most graceful streaks. There is not, however, any thing in the least gaudy or fantastic in the general result. It certainly arrests the eye, but it is from the rich beauty of the intermingled colors, not from any undue showiness. This wood takes a very high polish. It is wrought into chairs, and particularly into tables, and even large folding-doors have been made of it.—*Partridge*, *leopard* and *porcupine* woods are very rarely used. Their names are derived from a supposed similarity of their colors to those of the animals whose denominations they bear.

Wood, Anthony, an eminent English antiquary and biographer, born at Oxford, in 1632, entered of Merton college, Oxford, in 1647. Having graduated M. A., he set himself to transcribe the monumental inscriptions and arms of the parishes of Oxford, and, in 1660, obtained permission to consult the registers and other records of the university in the Schools' Tower. These researches, added to others in the Tower of London and the Cotton library, produced the materials for his History and Antiquities of the University of Oxford. The copy of this work, which he had compiled with greater industry than skill, was purchased of him by the university for 100 pounds. It was written in English; but as it was thought proper that it should appear in Latin for the information of foreigners, it was translated into that language, under the inspection of doctor Fell, and published at the Oxford press, under the title of *Historia et Antiquitates Universitatis Oxoniensis* (2 vols., folio). Of this version he often complained, as exhibiting various mistakes and omissions. In 1691 appeared his more popular and important work, *Athenæ Oxonienses*, or an account, in English, of almost all the writers educated at Oxford, and many of those at the university of Cambridge. A prosecution was soon after instituted against him in the vice-chancellor's court, for an imputation, in this work, affecting the character of the deceased earl of Clarendon; and he was sentenced to expulsion until he should formally recant it. His work affords valuable materials for biography. He died in 1695, and left his books and papers to the university of Oxford. A third edition of his *Athenæ Oxonienses*, corrected from the author's manuscripts, and continued, appeared under the superintendence of doctor Bliss (1813—1817, 3 vols., 4to.).

Wood, Robert, an accomplished scholar and statesman, was born at Riverstown, in the county of Meath, in 1716. In 1751, he made the tour of Greece, Egypt and Palestine, in company with Bouverie and Dawkins, and, at his return, published a splendid work in folio, entitled the Ruins of Palmyra, otherwise Tadmor in the Desert (fol., 1753), being an account of the ancient and present state of that place, with fifty-seven elegant engravings; republished in Paris in 1819 (4to.). This was followed by a similar Description of the Ruins of Balbec, with forty-six plates (1757). In 1759, he was appointed under secretary of state by the earl of Chatham, at which time he was preparing for the press his Essay on the Life and Writings of Homer, which did not appear until after his death, which took place at Putney, in 1771. This work has been translated into French, Italian, Spanish and German; the latter by Heyne, with a preliminary essay.

Wood, Matthew, is a native of Tiverton, where he was born in 1770. His parents were engaged in business there, and brought up a numerous family with credit, and well qualified to seek their fortunes in the world. Matthew travelled for some years for the house of an eminent druggist, and afterwards engaged in the same line of business. He soon became common-council man, and, in 1808, alderman, of London. In 1809—10, he was made sheriff. In 1817, he became lord mayor, and, on the expiration of his office, received the extraordinary compliment of being elected a second time. In the mean time, he was returned to parliament, after a severe contest, and, in a subsequent struggle, was again placed in the same situation. Here he exerted himself to procure an inquiry into the state of the metropolitan prisons, and distinguished himself by his activity in procuring the abolition of the blood-money rewards. (See *Informer*.) He met the queen at St. Omer, and accompanied her to England, and, in her carriage, into London, where she made his house her temporary residence. During the arduous conflict which ensued between the court and the ministry, and the queen and the people of England, Alderman Wood was the active adherent of her majesty. After her death, he attended her remains to Brunswick. Alderman Wood has realized a large fortune in the hop trade, and in the working of some copper mines in Cornwall. In the performance of his parliamentary and other public duties, he has shown himself indefatigable and honorable. His popularity had, however, so far declined, that, in 1826, he was the last on the poll of the members returned for the city. In parliament, he has been the advocate of reform and retrenchment.

Wood Engraving. Some account of this may be found in the article *Engraving*. We add here, that one of the chief advantages of wood-cuts is, that they may be printed by the same process as common letter-press. In a copper-plate, as may be known to most of our readers, the parts which are intended to leave an impression upon the paper are cut into copper, so that, after the ink is spread over the engraving, it has to be rubbed from all the prominent or uncut portion of the surface, in order that it may remain only in these hollows. Several disadvantages result from this. In the first place, the plate is very soon worn, or the fineness of the lines impaired, by this continual abrasion.* Secondly, from the method of inking being so different from that which is used in printing letter-press, where the parts of the type that make the impression are the prominences and not the hollows, and the ink, therefore, is allowed to remain where it naturally adheres on being applied by the ball or roller, the copper-plate engraving must always be printed by itself, and generally on a separate page from the letter-press. The only way of giving both on the same page, is to subject the paper to two successive impressions, which, besides the inconvenience of the operation, almost always produces an unpleasant effect from the difference of color in the two inkings, and the difficulty of adjustment. A wood-cut has none of these disadvantages. As the impression is to be made by the prominent parts of the wood, these, which receive the ink directly from the roller, are allowed to retain it, just as in the case of ordinary types; and there is, therefore, nothing of that process of rubbing at every impression, which so soon wears out a copper-plate. The consequence is, that while rarely more than two thousand impressions can be taken from a copper engraving before it requires to be retouched, a wood-cut will yield, perhaps, fifty thousand. Then the latter, from the manner in which it is to be inked, admits of being set up, if necessary, just like any of the other types, in the midst of a common page, and so of being printed both in the most convenient place, and without any separate process. The block must, of course, for this purpose, be made very exactly of the same thickness or depth as the other types, along with which it is placed. In the early days of wood engraving, the pear-tree or apple-tree was the wood most commonly used; but box-wood is now generally employed, as being of a still firmer and more compact grain. The surface of the block is first shaved very even and smooth; and upon this the figure is then traced in penciling, as it is to be finally cut out in relief.

Woodbine. (See *Honeysuckle.*)

Woodchuck. (See *Marmot.*)

Woodcock (*scolopax minor*). This bird is universally known to our sportsmen. On its first arrival in the spring, it keeps to the woods and thickets during the day-time, but resorts to springs and open watery places, for feeding, at the approach of evening. About the beginning of July, when their favorite springs and inland watery recesses are dried up, these birds descend to the marshy shores of our larger rivers, and afford fine shooting. This sport is eagerly followed, though still more laborious and fatiguing than snipe shooting. The woodcock is properly a nocturnal bird, seldom stirring till after sunset in search of its accustomed food, which consists of various larvæ and aquatic worms. In the evening, as well as early in the morning, particularly in the spring, it often rises to a considerable height in the air, and hovers round in a wild, irregular manner, making a sort of murmuring noise. The flesh is highly esteemed. The nest is placed on the ground in a retired part of the woods, and the eggs are of a dun clay color, thickly marked with brown spots. It extends its migrations to the St. Lawrence, and remains in the Middle States till late in the autumn. The forehead and all the lower parts are reddish tawny; the upper parts mottled with black and light brown. The European woodcock is a much larger species.

Woodhouselee. (See *Tytler.*)

Woodpecker (*picus*). These birds have a stout angular bill, wedge-shaped at the apex, straight, or, in a few species, slightly arcuate, and furnished with feathers at the base. The tongue is long, worm-like, capable of being protruded beyond the beak, and terminates in a horny and very acute point, barbed with reflexed spines, like an arrow, and serves to transfix insects. This operation is accomplished by the peculiar form of the os hyoides, the two branches of which are prolonged around the skull, passing over the summit, till they reach the base of the bill, and a corresponding muscular arrangement. The tarsi are short and naked; the toes, two before and two behind, long-armed, with strong, compressed, hooked nails, every way adapted for clinging. The tail, besides, serves the purpose of a third member, having the shafts of the feathers stiff, elastic and projecting, acting the part of a bracket in supporting the bird, when thrown inward against the trunk of a tree. The species are numerous, and are found in all parts of the globe; at least in all that are covered by forests. They cling to the trunks of trees, holding their bodies upright, and strike holes in the bark, in search of insects which take shelter in the crevices. They nestle in holes of trees, which they excavate by repeated blows with their beaks. Some occasionally feed on fruits and berries. Their plumage is very much varied, composed of the most striking colors, blue only excepted. We have numerous and very beautiful species in the U. States, such as the ivory-billed, pileated, hairy, downy, Carolina, red-headed, red-cockaded, and yellow-bellied. The golden-winged woodpecker, or flicker, so familiarly known in most parts of the U. States, is remarkable for having the bill slightly arcuated. In Canada and the extreme northern parts of the U. States, a species is found having but three toes; and others exist, in the East Indies, having the fourth toe very short, or merely rudimentary.

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* Engraving on steel is, in a great measure, free from this disadvantage.

WOODS, LAKE OF THE. (See *Lake of the Woods*.)

WOODSTOCK; a borough and market-town of England, in Oxfordshire. Woodstock has two manufactures, those of polished steel and gloves; the former much decayed: the latter was begun here about seventy years ago. Population in 1831, 1320. Previous to the passage of the reform act in 1832, it returned two members to parliament, who were chosen by about 400 voters. By that act it was deprived of one of its members.

WOOL; a term used very indefinitely. It is applied both to the fine hair of animals, as sheep, rabbits, some species of goats, the vicugna, &c., and to fine vegetable fibres, as cotton (the German name of which is *tree-wool—Baumwolle*). In this article, however, we refer only to the wool of sheep, a substance which, from the earliest periods, has been of primary importance, because it has always formed the principal material of the clothing of mankind in most temperate regions. What Columella says (lib. viii, cap. 2), still remains true: *Post majores quadrupedes, ovilli pecoris secunda ratio est, quæ prima sit, si ad utilitatem magnitudinem referas. Nam id præcipue nos contra frigoris violentiam protegit; corporibusque nostris liberaliora præbet velamina.* We have given, in the articles *Sheep*, and *Sheep-Raising*, some historical and other information on this interesting subject, and must refer the reader to that article, as forming, in some degree, one whole with the following. On those parts of the sheep where wool does not grow, it has hair, like other animals, as on the nose and the lower part of the legs. Those parts of the skin which cover flesh, always produce wool in the healthy state of the animal. The fibres of the wool are either straight and lank, or crooked and interlaced. The division into locks, formed by the coherence of the single fibres, varies in every species of wool, and forms what is called the *staple*. The body of wool, which is shorn in connexion from one animal, is called a *fleece*. If we imagine a fleece spread out, the wool of the head, the legs, the belly, and the tail (which is the worst), form the exterior parts or margin. The wool of the same animal differs much on the various parts of the body: that on the back and the sides is the best. The great difference in the wool of different sheep depends, in general, upon their descent, the crossing of breeds, climate, food, and manner of living, and among the individual animals of the same breed, upon age, sex, and outward circumstances. The wool is, therefore, divided into coarse wool, which is long, either straight or irregularly curled, and fine wool, which is regularly curled. There are again many subdivisions. In Spain, the sheep are sorted before the washing, then shorn, and at last the wool is washed. It comes into the market divided into four sorts: *refina*, *prima*, *segonda* and *tercera*. The Saxon wool is also divided into four sorts: *electoral*, *prima*, *secunda* and *tertia*. To sort the wool requires much practice, in order to discern minute differences that are quite inappreciable by common observers. Frequently eight or ten different kinds are found in a single fleece; and if the best wool of one fleece be not equal to the finest sort, it is put with a second, third or fourth, or a still lower class, of an equal degree of fineness with it. The best English short native fleeces, such as the fine Norfolk and south down, are generally divided by the wool-sorter into the following kinds, all varying in fineness, viz. 1. prime; 2. choice; 3. super; 4. head; 5. downrights; 6. seconds; 7. fine abb; 8. coarse abb; 9. livery; 10. short, coarse, or breech wool. The relative value of each varies according to the greater demand for coarse, fine or middle cloths. Fine Merino wool, upon healthy and full-grown animals, grows within a year from one to two inches, generally from one and a half to two inches. As the fineness of the wool is a very important quality (though softness is equally so), "wool-measures" have been invented. One of these, that of A. C. F. Köhler and K Hoffmann, two German gentlemen, measures a hundred of the fibres of the wool at once: they are put into a cavity in the middle of the instrument, and pressed by a peculiar apparatus, with a weight of about three Leipsic pounds, till the maximum reaction of their elasticity is reached, and the result is indicated, sixty times magnified, on a semicircle divided into degrees. Mr. Köhler has written a pamphlet on the use of this instrument, and Mr. Hoffmann makes them for sale in Leipsic. The price of one is forty Saxon dollars. The softness of the fibre, as already observed, is of great importance. It does not depend on fineness, and consists of a peculiar feel, approaching to that of silk or down. The difference in the value of two pieces of cloth, made of two kinds of wool equally fine, but one distinguished for its softness, and the other for the opposite quality, is such, that, with the same process and expense of manufacture, the one will be worth from twenty to twenty-five per cent. more than the other. Mr. Bakewell maintains that the degree of softness depends principally on the nature of the soil on which sheep are fed; that sheep pastured on chalk districts, or light, calcareous soil, usually produce hard wool; while the wool of those that are pastured on rich, loamy, argillaceous soils, is always distinguished by its softness. The Saxon wool is generally softer than the Spanish. Hard wools are all defective in felting properties. The felting property of wool is known to every one. The process of hat-making, for example, depends entirely upon it. The wool of which hats are made is neither spun nor woven; but locks of it, being thoroughly intermixed and compressed in warm water, cohere, and form a solid, tenacious substance. Whole tribes use felted wool for cloth. Cloth and woollen goods are made with us from wool possessing this property: the wool is carded, spun, woven, and then, being put into the fulling-mill, the process of felting takes place. The strokes of the mill make the fibres cohere: the piece subjected to the operation contracts in length and breadth, and its texture becomes more compact and uniform. This process is essential to the beauty and strength of woollen cloth. But the long wool, of which stuffs and worsted goods are made, is deprived of its felting properties. This is done by passing the wool through heated iron combs, which take away the *laminæ*, or feathery part of the wool, and approximate it to the nature of silk or cotton. Long or combing wool may vary in length from three to eight inches. The shorter combing wools are principally used for hose, and are spun softer than the long combing wools; the former being made into what is called *hard*, and the latter into *soft* worsted yarn. Short wool is used in the cloth manufacture, and is, therefore, frequently called clothing wool. It may vary in length from one to three or four inches; if it be longer, it requires to be cut or broken to prepare it for the manufacture. In clothing wool, the color of the fleece should always approach as much as possible to the purest white; because such wool is not only necessary for cloths dressed white, but for all cloths that are to be dyed bright colors, for which a clear white ground is required to give a due degree of richness and lustre. Some of the English fine woolled sheep, as the Norfolk and South Down, have black or gray faces and legs. In all such sheep there is a tendency to produce gray wool on some part of the body, or to produce some gray fibres intermixed with the fleece, which renders the wool unfit for many kinds of white goods; for, though the black hairs may be too few and minute to be detected by the wool-sorter, yet, when the cloth is stoved, they become visible, forming reddish spots, by which its color is much injured. The Herefordshire sheep, which have white faces, are entirely free from this defect, and yield a fleece without any admixture of gray hairs. The cleanliness of the wool is an important consideration. The Spanish wool, for example, is always scoured after it is shorn, as stated above; whereas the wool of many other countries is only imperfectly washed previously to its being shorn. In consequence of which, it is said that while a pack of English clothing wool, of 240 pounds weight, will waste about seventy pounds in the manufacture, the same quantity of Spanish wool will not waste more than forty-eight pounds. Cleanness, therefore, is an object of much importance to the buyer. Whiteness of fleece is of less importance in the long combing than in clothing wool, provided it be free from gray hairs. Sometimes, however, the fleece has a dingy brown color, called a *winter stain*, which is a sure indication that the wool is not in a thoroughly sound state. Such fleeces are carefully thrown out by the wool-sorter, being suitable only for goods that are to be dyed black. The fineness of heavy combing wool is not of so much consequence as its other qualities. We have already spoken, in the article *Sheep*, of the deterioration of British wool from the raising of fine mutton. The better the meat, the coarser the wool. However, whilst the average weight of a fleece of the German Merino breed is about two and a half to three pounds, that of a fat Leicester sheep is from eight to nine pounds; and thus the large fleece somewhat makes up the loss of fineness by increase of weight, so that it is probable, that, notwithstanding the decline in the price of wool, taking into account the greater weight of the carcass and the greater weight of the fleece, sheep produce more at present to the British farmer than at any former period. According to a table, formed by order of the lords' committee of 1828, and published in their report on the wool duty question, the quantity produced, on an average of years, in England, is 111,160,560 pounds: the importation was, in 1828, 29,122,447 pounds, making a total of 140,283,007 pounds for every year's consumption and exports in the shape of manufactured goods. In Germany, the fine wool produced has surprisingly increased since 1815, or since peace took place. We have spoken of the history of this branch of industry, in Germany, in the article *Sheep*. We only add, that, from papers laid before the British parliament, it appears, that for the year ending January 5, 1829, there were imported from Germany 23,110,822 pounds of wool, which, calculated at an average of 1*s*. 6*d*. per pound, makes a return, from England alone, of £1,733,311, 13*s*. Admitting only one half more for the wool exported to France, the Netherlands, Russia, Poland and Switzerland, and assuming that the internal manufactures of Germany consume one half of the wool produced, which is short of the truth, the result will give £5,199,934, 19*s*. of annual value, created by the growth of wool now raised, instead of the worthless hair produced upon the old indigenous sheep of Germany, which was scarcely in sufficient quantity to supply the peasantry with worsted petticoats and stockings. It is not only in Saxony that fine wool is raised: in Silesia, Moravia, Austria Proper, Bohemia, also in Hungary, &c., noble flocks have sprung up. Until the elector of Saxony received a present of a small Merino flock from the king of Spain, about thirty years since the only fine wool known was the Spanish wool, which at that time was supplied to England, France and the Netherlands for their fine cloth manufactures. Unfortunately for the Spanish flock-masters, the captains of Napoleon's armies which invaded Spain, drove several of the finest flocks into France; and many others were killed or dispersed by the various parties which ravaged that country during the contest for its dominion. So completely were they destroyed, and the original system of keeping the sheep lost, in the convulsions of that period, that the wool has degenerated into a quality not worth more than one third of that of the same stock of sheep in Germany. The following table, taken from the English custom-house returns of imports, will show the effects of this transfer of the Merino breed from Spain to Germany:—

Imported from	in 1800.	1814.	1827.	
Germany, ...	421,350	3,595,146	22,007,198	pounds.
Spain and Portugal, . .	7,794,758	9,234,991	4,349,643	“

In 1800, the ports of both countries were open to English commerce, as well as at the two latter periods; so that, in fact, the progressive increase of importations from Germany, and the decrease from Spain, are the best possible tests of the revolution which has taken place in the relative position of those two countries as respects the wool cultivation. A table below shows the different prices. But not Germany only has become a rival of Spain: two distant colonies of England may soon vie with both—New South Wales and Van Diemen's Land. In the year 1795, a small flock of sheep, not exceeding one dozen, was carried to the upper colony of New South Wales, from the cape of Good Hope. From these sprung the vast flocks which now exist there. The quantity of wool yielded for a long time was too small to form a shipment to England; but, in 1804, some Merinos, purchased from the king's flock at Windsor, were sent out; and such a prodigious increase of sheep took place, that whilst, in 1806, only 245 pounds of wool were imported into England from New South Wales, in 1828, 1,603,512 pounds were imported. The following table will show the value of the various kinds of wools of the different countries in the London market:—

Germany,			*s.*	*d.*		*s.*	*d.*
Saxony and Silesia	1st and 2d Electoral,	per lb.	4	0	to	6	6
	Prima, . . .	“	2	6	“	3	6
	Secunda, . .	“	1	9	“	2	3
	Tertia, . . .	“	1	6	“	1	9
Austria, Bohemia, and Hungary,	Elector. .	“	4	0	“	5	6
	Prima, . .	“	2	4	“	3	9
	Secunda,	“	1	9	“	2	3
	Tertia, . .	“	1	3	“	1	9
Lambs', ...		“	1	6	“	3	9
Pieces.		“	1	6	“	2	6

		s.	d.		s.	d.
Fribs, ...	per lb.	1	3	to	1	9
Fleeces, ...	"	1	6	"	2	6
Spanish, Leonesa, ...	"	2	0	"	2	9
Segovia, ...	"	2	0	"	2	4
Soriana, ...	"	1	10	"	2	0
Caceres, ...	"	2	0	"	2	3
Seville, ...	"	1	8	"	1	10
Portugal, ...	"	1	2	"	1	4
Lambs', ...	"	1	4	"	2	0
Australian, best, ...	"	2	0	"	5	0
2d and inferior, . . .	"	1	2	"	2	0
Lambs', ...	"	1	2	"	2	1
Van Diemen's Land,						
Greasy and inferior,	"	0	9	"	1	0
Clean and better, . .	"	1	3	"	1	9
Eng. Merino, washed, .	"	1	9	"	2	6
In the grease, . . .	"		none.			
South Down, ...	"	1	0	"	1	4
Goats' wool, Turkey, . .	"	1	4	"	1	8

According to a work by M. Ternaux (q. v.), Paris, 1827, on sheep-breeding and the wool trade in France, the Spanish wool was, forty years ago, the dearest. Since 1794, but particularly since 1804, its price has sunk considerably, whilst that of Saxon wool has risen. In 1804, a kilogramme of the best Spanish wool cost twenty-four francs, in 1827, only nine francs; the best French wool at the first period, eighteen francs, at present, twenty francs; and Saxon electoral wool, at the first period, sixteen francs, at present, thirty-four francs. As London is the great mart of the world, and the consumption of wool in England so enormous,—32,000,000 pounds of foreign wool alone in a year,—a table giving the imports of wool from all quarters into Great Britain will afford some idea of the relative production of wool in the various countries.

Countries from which imported.	1810.	1815.	1820.	1825.	1827.	1830.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds*
Russia, Sweden and Norway,	59,503	371,484	75,614	1,995,900	607,558	203,231
Denmark, . . .	351,741	424,822	13,527	554,213	59,826	179,717
Prussia, ...	123,057	105,073	107,101	131,100	786,410	713,246
Germany, . . .	778,835	3,137,438	5,113,442	28,799,661	21,220,788	26,073,882
Netherlands, . .	2,873	432,832	186,051	1,059,243	392,454	939,123
France, ...	. .	756,427	230,909	436,678	345,360	45,093
Portugal, ...	3,018,961	1,146,607	95,187	953,793	451,637	461,942
Spain and Canaries, ...	5,952,407	6,929,579	3,539,229	8,206,427	3,898,006	1,643,515
Gibraltar, ...	349,053	12,891	3,851	19,250	18,988	
Italy, ...	21,554	97,679	2,815	227,453	177,269	9,461
Malta, ...	40,040	55,804	5,050	72,131	5,565	
Ionian Islands,	. .	. .	. .	25,983		
Turkey, ...	.	12,513	189,584	513,414	315,807	
Guernsey, Jersey, Alderney and Man, . . .	41,407	6,264	19,015	22,266	26,949	7,745
East Indies, . .	701		8,056		5,219	
New Holland and Van Diemen's Land, ...	167	73,171	99,415	323,995	512,758	1,967,309
Cape of Good Hope, ...	29,717	23,363	13,869	27,619	44,441	33,407
British North American colonies, West Indies, and U. States of America, ...	4,111	8,590	1,477	80,538	87,187	9,038
Peru, ...	.	. .	. .	14,313	165,955	5,741
Chile, ...	.	. .	14,792	2		
Rio de la Plata and Brazil, . .	116,173	45,838	73,036	331,302	270	20,589
Prize, ...	23,837					
Total imports from foreign parts.	10,914,137	13,640,375	9,789,020	43,795,281	29,122,447	32,313,659

For the wool of the U. States, the reader is referred to the articles *Sheep*, and *United States*. The amount of wool imported into the U. States in the year ending

September 30, 1829, was 1,494,439 lbs.
" " 1830, " 669,883 "
" " 1831, " 5,622,960 "

For more information, we refer the reader to the various English publications on this subject, which include several able treatises on the question of the wool trade. Various German and French treatises also should be mentioned; as Wagner's Contributions to the Knowledge and Treatment of Wool and Sheep (2d ed., Berlin, 1821); F. B. Weber, On the Raising of fine and noble Wool (Breslau, 1822); J. M. baron von Ehrenfels, On the Electoral Sheep and Electoral Wool (Prague, 1822); Christ. Charles André, Latest Views on the Raising of Wool and Sheep, taken from three French Writers (Prague, 1825, 4to.); Sheep and Wool, by professor Ribbe (Prague, 1825); Petri's Whole Subject of Sheep-Breeding, &c. (Vienna, 1825, 2 vols., 2d ed.); The latest and most interesting Notices respecting a Knowledge of the finer Kinds of Sheep and Wool, by the same (Vienna, 1829); On the Wool Trade of Germany in 1829, by Elsner (1830): all of these works are in German: further, *Nouveau Traité sur Laine*, by viscount Perrault de Jotemps (Paris, 1824); *Histoire de l'Introduction des Moutons à Laine fine d'Espagne dans les divers États de l'Europe*, &c., by M. C. P. Lasteyrie (Paris, 1802); *Notice sur l'Amélioration des Troupeaux de Moutons en France*, by G. L. Ternaux (Paris, 1827). The reports on the trade in the newly-erected wool markets at Berlin, Breslau, Stettin, Dresden, Leipsic, Nuremberg, &c., published in the *Allgemeine Zeitung*, are also of much interest. (See the next article.)

Woollens. The fibres of wool, being contorted and elastic, are drawn out and spun by machinery in some respects similar to that used for cotton, but differing in various particulars. In the preceding article, it is mentioned that there are two sorts of wool which afford the basis of different fabrics, the *long* wool or worsted, in which the fibres are rendered parallel by the process of combing, the material of which camlets, bombazines, &c., are made, and the *short* wool, prepared by carding, like cotton, which is used, in different degrees of fineness, for broadcloths, flannels, and a multitude of other fabrics. This wool, when carded, is formed into small cylindrical rolls, which are joined together, and stretched and spun, by a *slubbing* or roving machine, and a jenny or mule, in both of which the spindles are mounted on a carriage, which passes backwards and forwards, so as to stretch the material, at the same time that it is twisted. On account of the roughness of the fibres, it is necessary to cover them with oil or grease, to enable them to move freely upon each other during the spinning and weaving. After the cloth is woven, the oily matter is removed by scouring, in order to restore the roughness to the fibres preparatory to the subsequent operation of fulling.—In article which are made of long wool, the textur is complete when the stuff issues fro the loom. The pieces are subsequentl dyed, and a gloss is communicated them by pressing them between heat metallic surfaces. But in cloths made short wool, the web, when taken from t loom, is loose and open, and requires be submitted to another operation, call *fulling* (q. v.), by which the fibres made to felt, and combine more close (See *Felting*.) By this process, the cl is reduced in its dimensions, and the bea ty and stability of the texture are grea improved. The tendency to beco thickened by fulling, is peculiar to wo and hair, and does not exist in the fib of cotton or flax. It depends on a ce tain roughness of these animal fibre which permits motion in one directio while it retards it in another. It th promotes entanglements of the fibre which serve to shorten and thicken t woven fabric. Before the cloth is se to the fulling-mill, it is necessary cleanse it from all the unctuous mat which was applied to prepare the fib for spinning.—The nap, or downy s face of broadcloths, is raised by a proc which, while it improves the bea tends somewhat to diminish the stren of the texture. It is produced by car the cloth with a species of burrs, the of the common teasel (*dipsacus fullon* which is cultivated for the purpose. operation extricates a part of the fi and lays them in a parallel direct... The nap, composed of these fibres, is then cut off to an even surface, by the process of *shearing*. This is performed in various ways; but, in one of the most common methods, a large spiral blade revolves rapidly in contact with another blade, while the cloth is stretched over a bed, or support, just near enough for the projecting filaments to be cut off at a uniform length, while the main texture remains uninjured.

Manufacture of Woollens. In England, the arts of spinning wool and manufacturing the yarn into cloth, were undoubtedly introduced by the Romans. The manufacture of broadcloths was established soon after the year 1200, if not previously. But the woollen manufacture of Flanders being, at this period, and long after, in a comparatively advanced state, English wool was exported in large quantities to Bruges and other Flemish cities, whence fine cloths and other products were brought back in exchange. Edward III invited over Flemish weavers, fullers, dyers and others. Shortly after the first emigration of Flemings, or in 1337, an act was passed, prohibiting the wearing of any cloths made beyond sea, and prohibiting the export of English wool. From that period, the manufacture has always been regarded as of primary importance. During the reign of Charles II, there were many, though unfounded, complaints of the decay of the manufacture; and, by way of encouraging it, an act was passed, ordering that all persons should be buried in woollen shrouds. This act preserved its place in the statute book for more than 130 years. Towards the end of the seventeenth century, Mr. Gregory King and doctor Davenant (Davenant's *Works*, Whitworth's ed., vol. ii, p. 233) estimated the value of the wool shorn in England at £2 000,000 a year; and they supposed that the value of the wool (including that imported from abroad) was quadrupled in the manufacture, making the entire value of the woollen articles annually produced in England and Wales, £8,000,000, of which about £2,000,000 were exported. In 1700 and 1701, the official value of the woollens exported amounted to about £3,000,000 a year. Owing to the vast increase in the wealth and population of the country, the manufacture must have been very greatly extended during the last century; but the increase in the amount of the exports has been comparatively inconsiderable. At an average of the six years ending with 1789, the annual official value of the exports was £3,544,160 a year, being an increase of only about £540,000 on the amount exported in 1700. The extraordinary increase of the cotton manufacture, soon after 1780, and the extent to which cotton articles then began to be substituted for those of wool, though it did not occasion any absolute decline of the manufacture, no doubt contributed powerfully to check its progress. In 1802, the official value of the exports rose to £7,321,012, being the largest amount they have ever reached. In 1812, they sunk to £4,376,479. During the three years ending with 1830, the official and the declared or real values of the woollen manufactures exported from the United Kingdom have been as follows:—

	1828.	1829	1830.
Official value of woollen manufactures exported,	£5,728,969	£5,372,490	£5,558,709
Declared or real value of ditto, ...	5,125,984	4,661,259	4,850,884

Value of the Manufacture. Number of Persons employed.—The most discordant estimates have been given as to both these points. For the most part, however, they have been grossly exaggerated. Mr. Stevenson, who is one of the writers on British statistics on whose statements the most reliance is to be placed, after a careful examination into the subject, has given the following estimate of the value of the woollen manufactured goods annually produced in England and Wales, and of the interest, &c., of the capital, and the number of persons employed in the manufacture:—

Total value of manufactured articles, ...		£18,000 000
Value of raw material, ...	£6,000,000	
Interest on capital, sum to replace its wear and tear, and manufacturers' profits, ...	2,400,000	
Wages of workmen, ...	9,600,000	
		£18,000,000

Number of people employed, 480,000, or perhaps 500,000.

We believe, however, taking Scotland into account, and looking at the probable annual expenditure of each individual on woollens, that the total value of the manufactured articles annually produced in Great Britain may, at present, be moderately calculated at £20,000,000, or £22,000,000. But, on the other hand, Mr. Stevenson has materially underrated the proportion of the entire value of the manufacture falling to the share of the capitalists, and required to indemnify them for their various outgoings, and to yield them ordinary profits. In estimating the wages of the persons employed at about eight shillings a week, or twenty pounds a year, he is below the mark; and ten shillings a week, or twenty-six pounds a year, would be a more correct average. The number of persons employed in the manufacture does not probably much exceed, if it does not fall short of, 400,000.—The low condition of the woollen manufactures in the U. States at the commencement of the last war with Great Britain, was shown by the request of the secretary of war to congress, that the existing laws might be so far repealed as to allow the importation of six thousand blankets for the Indian department. The law, however, was not repealed, and the want of woollens, during that contest, caused the establishment of some woollen factories, and an extension of the business of those which had previously existed; but they could supply only a small part of the demand, and an illicit trade was, in fact, kept up with the enemy. The growth of sheep, and the manufacture of their wool, was of considerable value soon after the close of the war; and many millions of dollars were invested in these branches of business, fine-woolled sheep having been purchased at most extravagant prices, because fine wool had been sold for from three to four dollars per pound. But the high duties imposed during the war were reduced after its termination, and vast quantities of British and other woollen goods were introduced and sacrificed to break up the American establishments. The manufacturers were ruined, and the sheep were, to a great extent, slaughtered. Soon after the British cloths greatly advanced in price, and the American establishments began partially to revive, and maintained themselves, though the business was not profitable till the passage of the tariff law of 1824, by which the existing duty of fifteen per cent. on cloths and cassimeres, was immediately raised to thirty per cent., and was to be made thirty-three and a half per cent. after June 30, 1825. An ad valorem duty of twenty per cent., instead of the existing duty of fifteen per cent., was also imposed on imported wool, to advance to thirty per cent. after June 1, 1826, on all wool costing more than ten cents per pound. Contemporaneously with the changes in the American tariff, a revision of the English tariff was made, avowedly with the object of enabling the British manufacturers to command the foreign, and especially the American market of low-priced cloths. The duty imposed in 1824 proved inadequate for the protection of the American woollen manufactures; and their languishing state indicated the ruin of those engaged in them, unless further legislative encouragement was afforded. A bill to this effect received the sanction of the house, but was laid on the table in the senate by the casting vote of the vice-president. Steps were immediately taken to bring the subject again before congress; and a convention of delegates from the states interested was held at Harrisburg, in August, 1827. This convention prepared a memorial, recommending an ad valorem duty of forty per cent. on woollen manufactures, with an annual increase of five per cent. until it amounted to fifty per cent. In the debates on this subject in the next session of congress, Mr. Mallary estimated the consumption of woollens in the United States at $72,000,000 per annum; of which $10,000,000 were imported, $22,000,000 the productions of American manufactures, and $40,000,000 the result of household industry. The tariff adopted during that session much increased the existing duties both on manufactured and unmanufactured wool. Some changes in these particulars were made by the tariff of 1832. In the report on wool and woollens, made to the "friends of domestic industry," assembled in New York in the autumn of 1831, the gross annual product of wool and its manufactures in the U. States was estimated at $40,000,000. The fixed and floating capital vested in the woollen manufactories in the U. States, such as lands, water-rights, buildings, machinery, stock on hand, and cash employed, was estimated at an equal amount. The proportion between the amount of wool used in the factories and that worked up by household industry, was estimated to be as three to two.

Woollett, William, an eminent engraver, was born at Maidstone, in Kent, August 27, 1735. He was the son of a thread-maker, and early attracted the notice of his school-master by his display of talent for drawing. Having attempted some engravings in copper, which were seen by Mr. Tinney, an engraver, the latter took him as an apprentice. When out of his time, his rise in his profession was very rapid; and he brought the art of landscape engraving to great perfection. He also engraved historical subjects and portraits with the greatest success. All his best works bring high prices, but particularly his Niobe, Phaëton, Ceyx and Alcyone, Celadon and Amelia, and the Fishery, all from Wilson; and his Death of General Wolfe, and Battle of the Boyne, from West. He died May 23, 1785, at the age of fifty.

Woolsack; the seat of the lord chancellor of England, in his capacity of speaker of the house of lords. It is what its name implies, a large, square bag of wool, without back or arms, covered with red cloth. In front of the lord chancellor lie the great seal and the mace. The judges, king's counsel at law, and masters in chancery, who sit in the house of lords, but do not vote, are likewise seated on woolsacks. The practice was derived from the well-known fact of wool having been, from an early period, the great staple of England.

Woolston, Thomas, an English divine, the son of a tradesman of Northampton, was born in 1669. He was admitted of Sidney college, Cambridge, in 1685, of which he was subsequently elected fellow, and took orders. Having become an assiduous reader of the works of Origen, he imbibed a fondness for allegorical interpretations of Scripture; the result of which tendency appeared in 1705, in a work entitled the Old Apology for the Truth of the Christian Religion against the Jews and Gentiles revived. The object of this tract was to prove that all the actions of Moses were typical of Christ and his church, and to show that some of the fathers understood them as such, and not as realities. In 1720, he left his college, and went to London, where he published a Latin dissertation concerning the supposed epistle of Pontius Pilate to Tiberius. In the same year, he published two Latin dissertations in defence of Origen's allegorical mode of interpreting the Scriptures. His next work was an Inquiry whether the Quakers do not, the nearest of any other Sect, in Religion resemble the primitive Christians in Principles and Practice. His chief object in this publication was, apparently, to attack the clergy, which, with his refusal to reside at college, according to the statutes, caused him the loss of his fellowship, in 1721. In 1726, he published a Defence of the Miracle of the Thundering Legion. Engaging in the controversy between Anthony Collins and his opponents, he published several pamphlets, in which he not only argued for mystical interpretations of the miracles of Christ, but asserted that they were never actually wrought. He was now regarded as an enemy to Christianity, and a prosecution was instituted against him by the attorney-general, which Whiston, and other friends to toleration, had the interest to get stayed. He was not, however, silenced, and, in 1727, and the three following years, published his Six Discourses on the Miracles, and two Defences of the Discourses, in which he not only maintained his former opinions, but expressed himself with a sarcasm and ridicule which gave serious offence; and the law again interfered. He was tried at Guildhall for blasphemy, when his counsel pleaded that it was so far from his purpose to bring the Christian religion into contempt, that he intended to place it on a firmer footing. He was, however, found guilty, and sentenced to a year's imprisonment, and a fine of £100. He purchased the liberty of the rules of the king's bench prison, after the expiration of his imprisonment, not being able to pay his fine. He had obtained some money by his publications, which was swallowed up by legal expenses, and he chiefly relied for support on a small annual allowance from his brother, and the contributions of some respectable persons, who regarded him as a man of learning, misled by mysticism and enthusiasm. Solicitations were made for his release by doctor Samuel Clarke; but he declined giving any security not to offend again in a similar way. He was, however, soon after released by death, being carried off by an epidemic disorder in January, 1732—1733, in his sixty-second year.

Woolwich; a market-town of England, in Kent, on the Thames, eight miles below London; lon. 0° 3′ E.; lat. 51° 30′ N.; population, in 1821, 17,008. It was formerly only a small village, and owes its consequence to the establishment of a royal dock in the reign of Henry VIII. The dock-yard has been progressively increasing since its establishment, and, in its present state, includes about five furlongs in length by one in breadth; within which space there are two dry-docks, five slips, three mast-ponds, a mould-loft, storehouses of various descriptions, mast-houses, sheds for timber, dwellings for the various officers, a very complete smithery for the manufacture of anchors, &c. This dock-yard is under the direction of a commissioner, who has also the control of that of Deptford; and, during the last war, the number of artificers and laborers employed here amounted to nearly 2000: since the peace, they are reduced to about two thirds of that number. The arsenal at Woolwich, called the *Warren*, is the grand national depot for every species of ordnance, both military and naval, and contains an immense quantity of guns, gun-carriages, military wagons, and every thing pertaining to the department of the ordnance. The arsenal includes nearly sixty acres, and contains various piles of brick buildings for different uses. The number of artificers, laborers and boys employed is about 3000, exclusive of the convicts, who amount to about 900, generally employed in the most laborious offices. At Woolwich is a royal military academy, instituted in 1719, but not finally arranged till 1741. It is under the direction of the master-general and board of ordnance for the time being; a lieutenant-governor, an inspector, a professor of mathematics, and four masters; a professor of chemistry; a professor of fortification, and two masters; one French master, two drawing masters, a fencing master, a dancing master, &c. The number of pupils, styled *cadets*, since the peace, has been reduced to 100. They are of the most respectable families; when admitted, must be at least four feet and nine inches high, and not exceed sixteen, nor be under fourteen, years of age. As soon as they are admitted on the establishment, they begin to receive pay, at the rate of £45 12s. per annum. The building is of a castellated form, and was built at the expense of about £150,000. Woolwich contains, also, barracks, a pagoda, used as a repository for models, several hospitals, and other charitable establishments.

Wootz. (See *Steel.*)

Worcester; the chief town of Worcestershire, and one of the most ancient cities in England, agreeably situated in a beautiful vale on the eastern banks of the Severn. Being an ancient fortified place, this city had a strong wall, of which some remains may yet be seen. The cathedral is a noble specimen of Gothic simplicity. It was first erected by Ethelred, king of Mercia, in 680, but was burned down and rebuilt in the beginning of the thirteenth century. It suffered considerable damage during the civil war, in the reign of Charles I. Its form is that of a double cross. It is in length, 410 feet; in breadth, 78; and in height, 68; and the tower, which rises, from the centre of the cross aisle, to the altitude of 200 feet, is ornamented at the corners by lofty pinnacles and battlements. The cathedral contains many handsome monuments, and is adorned with a variety of sculptures. This city suffered much during the wars between the houses of York and Lancaster; but the most remarkable event here was the famous battle between the English army, under Cromwell, and the Scotch, in the cause of Charles II, in 1651. (See *Cromwell.*) Of the parish churches, there are nine within the walls and two without. Here are various public buildings and charitable institutions, and meeting-houses for various sects. Its hop market is the most considerable in the kingdom. There is a bridge over the Severn, consisting of five arches. The trade of Worcester is considerable. The porcelain and glove manufactures are carried on to a great extent. It sends two members to parliament. Population in 1831, 18,610; 120 miles north-west of London; lon. 2° W.; lat. 52° 10′ N.

Worcester, John Tiptoft, earl of, a patron of learning, and one of the few literary ornaments of England in the fifteenth century, was born at Everton, or Evaston, in Cambridgeshire, and educated at Baliol college, Oxford. He was the son of lord Tibetot, or Tiptoft and Powys, and was created a viscount and earl of Worcester by Henry VI, who also appointed him lord-deputy of Ireland. By Edward IV he was made knight of the garter, and constituted justice of North Wales for life. Dugdale says he was soon after made constable of the Tower; while others assert that he was twice lord high constable, and twice lord high treasurer. He was also a second time deputy or lieutenant of Ireland, under the duke of Clarence, in which capacity he attainted the earls of Kildare and Desmond for supporting the insurrection against government, and sentenced the latter to be beheaded. On the temporary reverse of fortune experienced by Edward IV and the house of York, in consequence of the junction between the earl of Warwick and the duke of Clarence, the earl of Worcester, the severity of whose judicial proceedings as high constable had rendered him extremely obnoxious to the Lancastrians, became one of the first objects of their vengeance. He endeavored to find security for his person by concealment, but was discovered in a tree in the forest of Weybridge, near Huntingdon, and thence conveyed to London, where he was hastily tried on the accusation of cruelty in his Irish administration, particularly towards two infant sons of the earl of Desmond, and condemned to lose his head on Tower hill, on the eighteenth of October, 1470, which sentence was executed accordingly. He was married three times, but left only one son and heir, by his third wife. The earl of Worcester appears to have been a person of considerable learning and of great accomplishments for the age in which he lived. In his return from a pilgrimage to Jerusalem, he had passed some time at Venice, Padua and Rome. He was led to Rome by his desire to see the Vatican library, and he there made an elegant oration to pope Pius II. He was a great collector of books, and gave manuscripts of 500 marks value to the university of Oxford. The literary works of this nobleman, as far as we are acquainted with them, are an English translation of Cicero *De Amicitia*, and of Two Declarations made by Publius Cornelius Scipio and Gayus Flamigneus, Competitors for the Love of Lucrece, both printed by William Caxton; some Orations and Epistles; and an English translation of Cæsar's Commentaries, as touching British affairs, supposed to be printed in the reign of Henry VIII. In the sixth of Edward IV, he drew up Orders for the placing of the Nobility in all Proceedings, and Orders and Statutes for Justs and Triumphs; and in the Ashmolean collection are Ordinances, Statutes and Rules, made by John Tiptofte, Erle of Worcester, and Constable of England, by the King's Commandment, at Windsor, 29th May, 6th Edward IV, to be observed in all Justs of Peers within the Realm of England, &c. He is also said to have written a Petition against the Lollards, and an Oration to the Citizens of Padua; and among the manuscripts belonging to Lincoln cathedral is a volume containing about twenty epistles, four of his writing, and the rest addressed to him.

Worcester, Edward Somerset, marquis of, an English nobleman, celebrated for his scientific studies, and supposed to have been the first inventor of the steam-engine. This nobleman engaged in the service of Charles I during the civil war, and, after its termination, spent his time in retirement, and in the cultivation of natural philosophy and mechanics. In 1663, he published a book entitled the Scantlings of One Hundred Inventions, in which he first gave a description of the uses and effects of his engine; and he afterwards published a small pamphlet, called an Exact and True Definition of the most stupendous Water-commanding Engine, invented by the Right Honorable (and deservedly to be praised and admired) Edw. Somerset, Lord Marquess of Worcester. (See *Steam*.) In neither of these works does he give any statement of the mode of constructing his engine; but, from his description and account of its effects, it may be inferred that its action depended on the condensation as well as the elastic force of the steam, and consequently that in principle it resembled the modern steam-engine. It seems also that he had actually constructed a machine upon a large scale, though, unfortunately for himself and for the interests of science, he was unable to excite the attention of the public towards his project, and was looked upon by his contemporaries as a visionary speculator. His death took place in 1667, at the age of seventy.

Worcester; shire town of Worcester county, in Massachusetts. (See *Appendix*, end of this volume.)

Word. (In the scriptural sense, see *Logos*; in a philological meaning, see *Languages*, and *Philology*.)

Word, or **Watchword**, in an army or garrison, is some peculiar word or sentence, by which the soldiers know and distinguish one another in the night, &c., and by which spies and designing persons are discovered. It is used also to prevent surprises. The word is given out, in an army, every night.

Wordsworth, William, the celebrated founder of what is called the lake school of poetry, was born in 1770, of a respectable family, at Cockermouth, in Cumberland. The first part of his education he received at Hawkshead grammar-school (Lancashire); and the classical knowledge which he acquired there is said to have been more extensive than is usual with boys of his age. While at Hawkshead, he delighted in reading and reciting the poets, and in rambling among the beautiful scenery of that country. His first attempt in verse was made at the age of thirteen. In 1787, he removed to Cambridge, where he was matriculated as a student of St. John's college. At the university he continued a sufficient time to obtain the degree of master of arts; and, in one of the long vacations, he undertook a pedestrian excursion on the continent. The result of his remarks he gave to the public, in 1793, with the title of Descriptive Sketches, in Verse, taken during a Pedestrian Tour in the Italian, Swiss and Savoyard Alps. In the same year, he published an Evening Walk, an Epistle in Verse, addressed to a Young Lady, from the Lakes of the North of England. Both these poems contain many specimens of beautiful picturesque description; but it is curious to observe how different is the style from that which he afterwards adopted. On quitting college, he for a while amused himself with wandering over various parts of the kingdom, and at length took a cottage in the secluded hamlet of Alfoxton, at the foot of the Quantock hills, in Somersetshire, and near the spot where Mr. Coleridge then resided. The two friends passed their time in literary pursuits, or in rambling among the hills, or by the sea-shore. Mr. Wordsworth was then a friend, and Coleridge an enthusiast, of liberty; and the consequence was rather ludicrous. A village lawyer took it into his head that they were dangerous Jacobins; and a spy was employed to watch them in their walks, and to endeavor to draw from them their supposed secret. As may be imagined, he could discover nothing, and reported them to be perfectly harmless. It was while he was dwelling in Somersetshire that he planned and partly wrote the Lyrical Ballads, intended as an experiment on a new system of poetry. They were published in 1798, and reprinted in 1807, with an additional volume. It was a considerable time before this novel poetical style found favor in the eyes of the public; and it was assailed by the weapons of ridicule, satire and argument; but it has at length gained numerous partisans and imitators, and Mr. Wordsworth is now looked up to as the head of a class which includes many men of talents. In 1798, he paid, in company with his sister, another visit to the continent, and, in 1803, settled at Grassmere, in Westmoreland. In 1803, he was united in marriage to Miss Mary Hutchinson, of Penrith, by whom he has several children. He has continued ever since to reside at Grassmere, or at Rydal, on one of the Westmoreland lakes, except during the period of a third tour on the continent (1820), in which he bent his steps to the classic land of Italy. Through the personal friendship of lord Lonsdale, Mr Wordsworth has for some years held the situation of distributor of stamps for the counties of Cumberland and Westmoreland. Besides the Lyrical Ballads, Mr. Wordsworth has published the Excursion, a Poem (4to., 1814), a work as original in its composition and subjects as it is honorable to the taste and benevolence of the writer; the White Doe of Rylstone, a Poem (4to., 1815); a Thanksgiving Ode, January 13, 1816, with other short Pieces, chiefly referring to Public Events (1816); Peter Bell, a Tale, in Verse (1819); the Wagoner, a Tale (1819); the River Duddon, a Series of Sonnets; Vaudracour and Julia, with other Pieces (8vo., 1820); Ecclesiastical Sketches (1822), consisting of a series of sonnets relative to certain points in the ecclesiastical history of England; and Memorials of a Tour on the Continent (8vo., 1822). The Excursion is the second part of a long poem entitled the Recluse, of which the first and third parts have not been published. The whole forms a philosophical poem, containing views of man, nature and society, and having for its principal subject the sensations and opinions of a poet living in retirement; the first and third parts consisting chiefly of meditations in the author's own person, while in the Excursion the intervention of characters speaking is employed. The minor poems which he had previously published were afterwards arranged by the author, in the edition of 1815, in such a manner as to show their psychological connexion with each other, and with the main work, the Recluse. The finer productions of Wordsworth's muse are characterized by the union of deep feeling with profound thought, a power of observation which makes him familiar with all the loveliness and wonders of the world within and around us, and an imagination capable of inspiring all objects with poetic life. His diction is lofty, sustained and impassioned, when he is not led astray by his attempts to extend the language of ordinary life to the subjects of poetry. Like his friends Coleridge and Southey, Wordsworth has forsaken and retracted his early liberal opinions.

World. (See *Universe*, and *Earth*, also *Commerce of the World*.)

Wörlitz; a town in the duchy of Anhalt-Dessau, three leagues from the city of Dessau, with 1800 inhabitants, and beautiful gardens in the English style, laid out by the late duke. Several descriptions have been given of it. There is a collection of ancient works of art, especially paintings, in the (so called) Gothic house, in this garden. (See *Dessau*.)

Worm. In the common acceptation of the word, this term is applied to caterpillars and other larvæ of insects; to those beings which dwell in the interior of living bodies; in short, to all small, soft, cylindrical animals, however various their conformation and modes of life. Even Linnæus included in his class *vermes*, the oyster, and the other mollusca, as well as the echini, polypi and medusæ, or sea-blubbers, animals which have since been very properly separated.

Worm, in gunnery; a screw of iron, to be fixed on the end of a rammer, to pull out the wad of a firelock, carbine or pistol, being the same with the wad-hook, only the one is more proper for small arms, and the other for cannon.—*Worm*, in chemistry, is a long, winding, pewter pipe, placed in a tub of water, to cool and condense the vapors in the distillation of spirits.—*Worm* a cable or hawser, in sea language, is to strengthen it by winding a small line, or rope, all along between the strands.

Wormius, Olaus; a learned Danish physician, born in 1588, at Aarhuus, in Jutland, where his father was a burgomaster. After some previous education, he went, in 1605, to the university of Marpurg, and then to Strasburg, where he studied medicine. He subsequently removed to Basle, and took the degree of M. D., having previously travelled in France, Italy, Holland and England. In 1613, he returned to his native country, and was made professor of the belles-lettres in the university of Copenhagen. In 1615, he was transferred to the chair of Greek literature, and, in 1624, to that of physic, which he held till his death. His academical engagements did not prevent him from practising as a physician; and the reputation of his skill occasioned his being employed by his sovereign, Christiern IV, who, in recompense of his services, made him a canon of the cathedral of Lund. His death took place in 1654. He was the author of several works relative to his profession, and also wrote in defence of the Aristotelian philosophy; but his most important productions are those concerning the antiquities of Denmark and Norway, among which may be mentioned *Fasti Danici*; *Litteratura Danica Antiquissima*; *Monumentorum Danicorum Libri sex*; *Lexicon Runicum*; and *Series Regum Daniæ*.

Worms; an old German city on the left bank of the Rhine, formerly one of the free imperial cities. By the peace of Luneville, in 1801, it was ceded, with the whole left bank of the Rhine, to France; and since the peace of Paris (q. v.), it has belonged to the province of Rhenish Hessia in Hesse-Darmstadt. It lies in an agreeable and fertile country, the Wonnegau (*land of joy*), so much praised by the *Minnesingers* (q. v.), and contains a population of 8000 inhabitants, who are supported chiefly by the cultivation of the vine, and the navigation of the Rhine. There are also some manufactures. The Protestant religion is the prevailing one. The Catholics have two churches, one of which is the cathedral, of which the foundation was laid in the eighth century, but which was not finished until the twelfth century. It is about 740 feet long, and 220 feet wide. The Lutherans have two churches, and the Reformed or Calvinists one. Among several excellent sorts of wine made here, the *Liebfrauenmilch* (milk of our dear lady) is distinguished. The grapes grow around the church of Our Lady, from which it has its name. Worms is one of the most ancient cities of Germany, and one of the most distinguished in the early history of the country. The Romans had a colony here; and the early Frankish kings, and even Charlemagne and the later Carlovingians, spent much time here. At a later period, it was the seat of the Rheno-Frankish dukes. In the history of the middle ages and that of modern times, Worms is also conspicuous. Many diets have been held here, of which those of 1495 and 1521 are the principal. The two held in the former year did much to establish order in Germany. At the latter, Luther defended his faith boldly before the emperor and the assembled members of the empire, concluding his address with the words, "Here I stand; I cannot do otherwise: so help me God! amen." Worms derived importance also from its manufactures, commerce, and population, which, even towards the end of the thirty years' war (q. v.), amounted to 30,000 souls, and, as a member of the confederation of the Rhenish cities, was engaged in the principal quarrels with the neighboring princes. It has declined during the two last centuries, particularly on account of the endless wars between Germany and France. In 1689, this city, as well as Spires, was almost entirely destroyed by the French, by the orders of Louvois. (q. v.) The city has been since rebuilt; yet there are even now many gardens where formerly there were buildings. In the early part of the French revolutionary war, Worms again suffered much, being occupied alternately by both the hostile armies. Worms was formerly a bishop's see, the prince-bishop of which was always the archbishop of Mayence.

Wormwood (*artemisia*); a genus of compound flowers, which may be recognised by the dissected and usually downy leaves, and the small roundish heads of flowers. The common species (*A. absinthium*) is tonic, anthelmintic, stomachic, and slightly stimulating, and has been used with advantage in intermittents, gout, scurvy and dropsy. The seed is used by the rectifiers of British spirits, and the plant is a good deal cultivated in certain parts of England for this purpose. The leaves and points of the shoots of the tarragon (*A. dracunculus*) are used as an ingredient in pickles. A simple infusion of the plant in vinegar makes a pleasant fish sauce: it is eaten along with beef-steaks, and is employed, both in Europe and Persia, to correct the coldness of salad herbs, and season soups and other dishes. The plant is of the easiest culture, but, like the other species, requires a dry soil. From the acrid leaves of *A. Chinensis*, moxa is obtained—a substance much in use among the Chinese as an actual cautery. For this purpose, the moxa is laid upon the part affected, and set on fire. Numerous species of *artemisia* are found upon the plains of Missouri.

Woronzoff; a distinguished Russian family. Three females belonging to it are conspicuous in Russian history:—1. *Elizabeth Woronzoff;* the mistress of the grand prince, afterwards emperor Peter III. She subsequently married the senator Polänski. 2. The countess *Butterlin*. 3. The princess *Daschkoff*, for some time the confidant of Catharine II. She took a very active part in the dethroning of the emperor, whose mistress her sister was, and in the elevation of Catharine to the throne. The uncle of these two, the high chancellor count Michael Woronzoff, was the head of the Swedish party, and the enemy of the chancellor Bestuscheff, the head of the Danish party. When the latter fell into disgrace, in 1757, count Woronzoff was made chancellor of the empire. Count Alexander Woronzoff was made, in 1802, chancellor of the empire by the emperor Alexander, and received the direction of the department of foreign affairs. His brother, S. Woronzoff, was Russian ambassador in London when the French revolution broke out, and took an active part in all the negotiations between England and Russia during the reigns of Catharine, Paul I, and Alexander. He died in London in June, 1832. His son, *Michael Woronzoff*, is governor of New Russia (residing at Odessa). He was a general of infantry in the wars of his country in 1813, '14 and '15, against France. In 1826, he was deputed by the emperor Nicholas, with Ribeaupierre, to negotiate, at Akermann, with the Turkish commissioners, respecting the misunderstandings between Russia and the Porte.

Worship of God. The expression of veneration for the highest of beings, of submission to his will, and of thankfulness for his goodness, though it may be offered in the secret stillness of the heart, will often be conveyed by external visible signs, through which the feelings of awe and love endeavor to manifest themselves in the most forcible and lively manner. These acts of homage to a superior power will be characterized by more or less of rudeness or elevation, as the conceptions of the object of worship are more or less gross or spiritual. Prayer and sacrifice, accompanied with various ceremonies, are the most general external acts, by which the feelings of religious veneration are expressed; and while some nations and sects are eager to surround these acts with all the splendor of earthly pomp, others think to render them more worthy of the Being to whom they are addressed, by the absence of all worldly show. If the worship of God, says Paley, be a duty of religion, public worship is a necessary institution; because without it the greater part of mankind would exercise no religious worship at all. Besides, assemblies appointed for this purpose afford regularly recurring opportunities for moral and religious instruction to those who would otherwise receive no such instruction. If we advert to facts, it will be found that the general diffusion of religious knowledge among all orders of Christians, compared with the intellectual condition of barbarous nations, can be ascribed to no other cause than the regular establishment of assemblies for divine worship; in which portions of Scripture are recited and explained, or the principles of Christian erudition are so constantly taught in sermons, incorporated with liturgies, or expressed in extempore prayer, as to imprint, by the very repetition, some knowledge and memory of these subjects upon the most unqualified and careless hearer. But while the different forms of Christian worship resemble each other in their fundamental principle, there is almost every variety in the details of the ceremony; and there have been not less violent controversies and causes of offence, afforded by different views of the ceremonial arrangements of worship, than by differences of opinion in matters of dogmatical theology or ecclesiastical government. The heathens objected to the early Christians, that their worship had none of the external splendor of other religions—no temple, no altars, no images. The primitive Christians assembled together in social worship, but they did not attribute any peculiar sanctity to the spot of their meeting, which, in fact, was commonly the house of one of the congregation. In the course of time, however, as they became more numerous, they met in rooms or buildings appropriated for the purpose. When the congregation was assembled, the first act of divine service performed was the reading of the Holy Scriptures, as was the custom in the Jewish synagogues. (q. v.) At first, the Old Testament was of course alone used for this purpose; but in process of time, as the books of the New Testament were composed, these were also read in the churches. The reading of the Scriptures was followed by a short and familiar address, explaining and applying what had been read, and exhorting the hearers to piety and virtue, and by the singing of psalms or hymns, selected from the Scriptures, or composed for the purpose. The congregation then rose up, and joined in prayer, with their faces turned towards the east. It is a subject of dispute whether precomposed forms or extempore effusions were used in prayer. (See *Liturgy*, *Mass*, *Lord's Supper*, &c.)

Worship, Minister of Public (in French, *Ministre du Culte*; in Prussia, *Minister des Cultus*). In those countries in which the direction of every thing is in the executive, and the whole action of society is regulated by the government (a system more consistently and effectually pursued in Prussia than, probably, in any other country), not only the administration of justice, but even of religious worship, is under the superintendence of a minister—an abuse which at one time was carried to a great extreme in Prussia. There is still in that country a "minister for the supervision of ecclesiastical affairs, of schools, and medicine." The use of the word *cultus* has been discontinued. The minister of public worship, however, does not superintend merely the forms of religious worship, but all ecclesiastical affairs. He appoints the various examinations which candidates for the ministry must pass through before they can be admitted to holy orders; investigates complaints against clergymen, or directs inquiries to be made, &c.; settles disputes between Catholics and Protestants, &c. In France, the ministry of public instruction is generally connected with that of the "*culte*," which latter has the management of ecclesiastical affairs in as far as they have a political character (in other respects they are under the control of the bishops, &c.). These two departments, however, are not always connected. At present, for instance (1832), M. Guizot is minister of public instruction, but, being a Protestant, is not the minister of public worship.

Worsley, sir Richard, son of sir Thomas Worsley, born in 1751, in the Isle of Wight, succeeded to the title in his eighteenth year, and soon after visited the continent, where he cultivated his taste for antiquities by the study of the remains of ancient Rome, and made some large purchases of statues, marbles, and other articles of *virtù*, which, on his return to England, it formed his principal amusement to classify and arrange. A catalogue of this collection was afterwards published under the title of *Musæum Worsleianum*, in two folio volumes. (See *Visconti*.) Sir Richard published a History of the Isle of Wight (in 1 vol., 4to., with engravings of the principal seats, views, &c., by Godfrey). He was many years in parliament as representative of the borough of Newport, and held a situation about the person of king George III, as comptroller of the royal household. He was also governor of the island, where he died in 1805.

Worsted; a thread spun of wool that has been combed, and which, in the spinning, is twisted harder than ordinarily. It is chiefly used either to be knit or woven into stockings, caps, gloves, &c. Worsted has obtained its name from Worstead, a market-town in the county of Norfolk, England, where the manufacture of the article was first introduced. The manufactures, which derived their name from the place, are now removed to Norwich and its vicinity.

Wort. (See *Brewing*, and *Malt*.)

Wotton, sir Henry, a conspicuous political and literary character in his own age, youngest son of sir Robert Wotton, was born in 1568. After receiving a classical education at Winchester school, he was entered at Oxford, where he much distinguished himself by his attention to logic and philosophy, and composed a tragedy. Having studied civil law, under an eminent Italian professor, he became a proficient in the Italian language. His father bequeathing him a moderate income, he determined, in 1589, to travel, and visited all the principal countries of the continent. On his return, he was appointed secretary to the earl of Essex, whom he attended in his maritime expeditions against the Spaniards, and afterwards to Ireland. On the fall of that nobleman, he quitted the kingdom, and resided at Florence, where he composed a treatise, printed after his death, entitled the State of Christendom. While thus employed, the grand-duke of Tuscany having intercepted some letters disclosing a plot to take away the life of James, king of Scotland, he engaged Wotton to carry secret intelligence of it to that prince. This service he ably performed in the character and guise of an Italian, and returned to Florence. When James came to the English crown, he sent for Wotton, knighted him, and, in 1604, employed him as an ambassador to the republic of Venice. As Wotton passed through Augsburg, being desired to write in an album, he wrote, in Latin, that "an ambassador is a good man, sent abroad to lie for the good of his country." This innocent sally was, by the malignity of Schioppius, represented as a state maxim, avowed by the religion of the king of England. James, who thought nothing relative either to king-craft or state-craft a subject for wit, was, in consequence, highly displeased; and, on his return, Wotton remained five years unemployed. At length he recovered the royal favor, and was trusted with a mission to the United Provinces, and subsequently restored to his former post at Venice, where he remained three years. Other missions followed, to the duke of Savoy, and to various princes in Germany, on the affairs of the elector palatine. A third embassy to Venice closed his diplomatic labors, from which he did not return until the death of James, when, in 1624, he was made provost of Eton college, as a reward for his various services. The first fruits of his leisure were his Elements of Architecture. The statutes of the college requiring him to assume a clerical character, he took deacon's orders, and spent the remainder of his life in literary leisure, social hospitality, and innocent amusement. He had planned a life of Luther; but, by the persuasion of Charles I, he laid it aside for a history of England, in which he made very little progress. The arrears of his demands on the crown remaining unpaid, he continued embarrassed to his death, which took place in December, 1639, in the seventy-second year of his age. Sir Henry Wotton was a person of sound understanding, poignant wit, and great accomplishments, in whom the scholar and the man of the world were very happily blended. In addition to the works already mentioned, there is a collection of miscellanies published, after his death, under the title of *Reliquiæ Wottonianæ*, several times reprinted. It consists of lives, letters, poems and characters, displaying a lively fancy and penetrating understanding, though somewhat obscured by the pedantry of the age. Of his poems, one, entitled a Hymn to God in my latter Sickness, is admired for energy of expression and harmonious versification. There is a Life of Sir H. Wotton by Walton.

Wotton, William, an English clergyman of distinguished learning, was born in 1666, and, under his father's tuition, acquired such a knowledge of languages, during his childhood, as caused him to be regarded as the wonder of the time. In his sixth year, he could construe the Latin, Greek and Hebrew tongues, chiefly by the aid of an extraordinarily retentive memory. In consequence of this precocity, he was entered at Catharine hall, Cambridge, before he was ten years old. He took the degree of bachelor of arts in his thirteenth year, some time before which he had been celebrated in a copy of verses, not only for his acquaintance with the learned languages, including Arabic, Syriac and Chaldee, but for his knowledge of geography, logic, philosophy and mathematics. In 1691, he was made chaplain to the earl of Nottingham, who, in 1693, presented him to a rectory. The first fruit of his extensive reading appeared in 1694, in his Reflections upon Ancient and Modern Learning, the plan of which was to institute a comparison between the ancients and moderns in all that regarded arts, science and literature. To a second edition, in 1697, was annexed doctor Bentley's Dissertation on Phalaris, which involved Wotton in the controversy respecting the merits of the ancients and the moderns, and subjected him to the satire of Swift, in the Battle of the Books. Embarrassed in circumstances, in consequence of some irregularities, he was obliged, in 1714, to retire into South Wales, where he employed himself in writing on ecclesiastical antiquities and kindred subjects. He also wrote various other pieces, but none which made any addition to his fame: and he may be enumerated among the instances in which early proficiency, resting principally on strength of memory, disappoints expectation. He died in 1726, at the age of sixty.

WOU WOU. (See *Ape*.)

WOUNDS are divided, by writers on surgery, into several kinds, the distinctions being founded either upon the sort of weapon with which the injury has been inflicted, or upon the circumstance of a venomous matter having been introduced into the part, or, lastly, upon the nature of the wounded parts themselves, and the particular situation of the wound. Hence we have *cuts*, *incisions*, or *incised wounds*, which are produced by sharp-edged instruments, and are generally free from all contusion and laceration. The fibres and texture of the wounded part have suffered no other injury but their mere division; and there is, consequently, less tendency to inflammation, suppuration, gangrene, and other bad consequences, than in the generality of other species of wounds. Incised wounds, also, may usually be healed with greater quickness and facility than other wounds which are accompanied with more or less of contusion and laceration: the surgeon has only to bring the opposite sides of the wound into contact with each other, and keep them in this state a few hours, and they will unite and grow together. Another class of wounds are *stabs*, or *punctured wounds*, made by the thrust of pointed weapons, as bayonets, lances, swords, daggers, &c., and also by the accidental and forcible introduction of considerable thorns, nails, &c., into the flesh. These wounds frequently penetrate to a great depth, so as to injure large blood-vessels, viscera, and other organs of importance; and, as they are generally inflicted with much force and violence, the parts suffer more injury than what would result from their simple division. It also deserves notice that a great number of the weapons or instruments by which punctured wounds are occasioned, increase materially in diameter from the point towards their other extremity; and hence, when they penetrate far, they must force the fibres asunder like a wedge, and cause a serious degree of stretching and contusion. It is on this account that bayonet wounds of the ordinary soft parts are very often followed by violent inflammation, an alarming degree of tumefaction, large abscesses, fever, delirium, and other very unfavorable symptoms. The opening which the point of such a weapon makes is quite inadequate to the passage of the thicker part of it, which can only enter by forcibly dilating, stretching and otherwise injuring the fibres of the wounded flesh. A third description of wounds are the *contused* and *lacerated*, which strictly comprehend, together with a variety of cases produced by the violent application of hard, blunt, obtuse bodies to the soft parts, all those interesting and common injuries denominated *gunshot* wounds. Many bites rank also as contused and lacerated wounds. In short, every solution of continuity which is suddenly produced in the soft parts by a blunt instrument or weapon which has neither a sharp point nor edge, must be a contused, lacerated wound. It has been remarked that, in case of violent death by gunshot wounds, the expression of the countenance is always that of languor, whatever may be the natural energy of the sufferer's character; but in death from a stab, the countenance preserves its traits of feeling or ferocity, and the mind its bias, to the last.—*Poisoned wounds* are those which are complicated with the introduction of a venomous matter or fluid into the part. Thus the stings and bites of a variety of insects afford us examples of poisoned wounds; and the surgeon, in the dissection of putrid bodies, or in handling instruments infected with any venomous matter, is exposed to the danger of poisoned wounds from cuts. The most dangerous, however, of this class of wounds, occur from the bites of the viper, the rattlesnake, &c. (see *Venomous Animals*), or from those of rabid animals. (See *Hydrophobia*.) Wounds may, likewise, be universally referred to two other general classes, the simple and complicated. A wound is called *simple* when it occurs in a healthy subject, has been produced by a clean, sharp-edged instrument, is unattended with any serious symptoms, and the only indication is to reunite the fresh-cut surfaces. A wound, on the contrary, is said to be *complicated* whenever the state of the whole system, or of the wounded part, or wound itself, is such as to make it necessary for the surgeon to deviate from the plan of treatment requisite for a simple wound. The differences of complicated wounds must, therefore, be very numerous, as they depend upon many incidental circumstances, the principal of which, however, are hemorrhage, nervous symptoms, contusion, the unfavorable shape of the injury, the discharge or extravasation of certain fluids, indicating the injury of particular bowels or vessels, &c. All large or deep wounds are attended with more or less of symptomatic fever, which usually comes on at a period varying from sixteen to thirty-six hours after the infliction of the injury, and is generally of the inflammatory, but sometimes of an asthenic character. It is of great consequence to attend to the type of this fever in the treatment; for the loss of blood, which may be required and sustained with impunity in the one species of fever, may prove most injurious, if not fatal, in the other.

Wourali Poison. (See *Poison.*)

Wouvermans, Philip, was born at Haerlem, in 1620, and was the son of Paul Wouvermans, a painter of history, of mean talents, who taught him the rudiments of the art; after which he became the scholar of John Wynants, and arrived at such a degree of perfection as to be esteemed superior to all his contemporaries. By the instruction and example of his master, the proficiency of Wouvermans was very remarkable; but to the knowledge of coloring and penciling which he acquired in that school, he added the study of nature, in which he employed himself with such critical attention, as to excel his master in the choice of his scenes, the excellence of his figures, and the truth of his representations. The subjects of which he seemed most particularly fond, were huntings, hawkings, encampments of armies, farriers' shops, and all kinds of scenes that afforded him a proper and natural opportunity of introducing horses, which he painted in the greatest perfection. In contemplating the works of this inimitable artist, we find ourselves at a loss to determine what part is most worthy of our applause and admiration; whether the sweetness of the coloring; the correctness of his design, his cattle, or his figures; the charming variety of attitudes in his horses; the free and yet delicate touchings of his trees; the beautiful choice of his scenery; the judicious use he makes of the chiaro-oscuro; or the spirit that animates the whole. His genius and invention were so strong and lively, that none of his pictures have either the same grounds or the same distances; for he varied them perpetually, with inexpressible skill; in some, representing simple, unembellished nature, and in others, scenes enriched with architecture, fountains, or edifices of a beautiful construction. His figures are always finely drawn, with expressions suitable to the subject; and the attitudes he chose were such as appeared unconstrained, natural, and perfectly agreeable. He had an amazing command of his pencil, so that he instantly and effectually expressed every idea conceived in his mind, and gave to his pictures an astonishing force, by broad masses of light and shadow, which he contrasted with peculiar judgment, and gave an uncommon degree of transparence to the coloring of the whole. The pencil of Wouvermans was mellow, and his touch was free. Though his pictures were finished most delicately, his distances recede with true perspective beauty; and his skies, air, trees and plants are all exact and lovely imitations of nature. In his latter time, his pictures had rather too much of the grayish and blue tint; but, in his best days, he was not inferior, either in correctness, coloring or force, to any of the artists of Italy. Yet, notwithstanding his uncommon merit, he had not the good fortune, during his life, to meet with encouragement equal to his desert; for, with all his assiduity and extreme industry, he found it difficult to maintain himself and his family. He seemed to be a stranger to the artifices of the merchants, who therefore imposed on him under the disguise of zeal for his interest, and, while they artfully enriched themselves by his works, contrived to keep him depressed and narrow in his circumstances. Wouvermans could not help feeling the neglect with which he was treated; and it affected him so strongly, that, a few hours before he died, he ordered a box filled with his studies to be burned; saying, "I have been so badly rewarded for all my labors, that I would prevent my son from being allured, by those designs, to embrace so miserable and uncertain a profession as mine." Some authors, however, ascribe this sacrifice to other motives, and say it proceeded from his dislike to his brother Peter, being unwilling that he should reap the product of his labors; and some again allege that he intended to compel his son to seek the knowledge of nature from his own industry, and not indolently depend on copying those designs. Wouvermans etched one plate, representing a horse standing, and tied to a tree. It is beautifully done, but uncommonly scarce. He died in 1668. After the death of Wouvermans, the value of his pictures increased to an incredible degree: they were universally coveted through every part of Europe, particularly by the dauphin of France and the elector of Bavaria, who bought all that could be procured, at very large prices.

Wrangel, Charles Gustavus, count of, Swedish field-marshal, a distinguished military commander of the seventeenth century, was descended from an old and illustrious Swedish family.—His father, *Herman Wrangel*, a Swedish counsellor of state, and field-marshal, was governor of Livonia at the time of his death, in 1644. The son, Charles Gustavus, entered the military service at an early age, and was brought up in the school of the celebrated Gustavus Adolphus. Under that prince he served in Germany; and, on the death of general Baner (q. v.), in 1641, Wrangel, who then had the rank of major-general, was one of those who commanded the Swedish forces, under very difficult circumstances, until the arrival of the new commander-in-chief, Torstenson. (q. v.) Wrangel continued to serve under that general, and accompanied him on his daring march to Holstein (1643), to carry the war into Denmark. (See *Thirty Years' War*.) After the death of admiral Fleming, the command of the Swedish fleet was confided to Wrangel, who was at first obliged to yield to the numerical superiority of the Danish naval force; but being reinforced by a Dutch squadron, he defeated the enemy off the island of Femern. He then commanded a detached corps in Holstein and Sleswick, until the peace of Brömsebrö (1645). In 1646, Torstenson having resigned the command, Wrangel was associated with Königsmark in that trust, and, having formed a junction with the French forces under Turenne, their combined operations forced the elector of Bavaria to accede to an armistice, at Ulm, in March, 1647. The elector having afterwards disavowed this act, the allied forces defeated the combined Austrian and Bavarian armies at Zusmarshausen, near Augsburg, May 17, 1648; and Wrangel occupied Bavaria until the peace of Westphalia (q. v.), in 1648, put an end to hostilities. After the accession of Charles Gustavus to the throne of Sweden, Wrangel accompanied his sovereign in the expedition against Poland, and was present at the celebrated three days' battle of Warsaw (July 18—20, 1656). In the course of this war, Denmark having entered upon hostilities against Sweden (1657), Wrangel laid siege to the fortress of Kronburg, which was obliged to surrender after twenty-one days (Sept. 6, 1658). He then took command of the Swedish fleet destined to attack Copenhagen; but the expedition proved unsuccessful, on account of the arrival of a Dutch fleet to the assistance of the Danes. The death of the king of Sweden put an end to the war in 1660. In 1674, Louis XIV having declared war against the German empire, Sweden engaged in the hostile operations on the side of France, and Wrangel commanded an army of 16,000 men, which invaded Brandenburg; but the ill success of this expedition is probably to be imputed to the sickness of the commander. The great elector, Frederic William (q. v.), at the head of 6000 cavalry, attacked the Swedish forces by surprise, and gained a complete victory at Fehrbellin (q. v.), June 18, 1675. The Swedes were obliged to evacuate Brandenburg, and even lost a part of Pomerania. Wrangel, who soon after retired from service on account of his infirmities, died the following year. In 1645, he had been rewarded for his services with the title of count.

Wrangler, Senior, in the university of Cambridge, England; the student who passes the best examination in the senate-house for the first degree (that of bachelor) in arts. (See *Cambridge*.) They who follow next in the same division, are respectively termed *second, third, fourth*, &c., *wranglers*. In a similar manner, they who compose the second rank of honors are designated as *first, second, third*, &c., *optimi* (best); those of the third order, *first, second, third, &c., junior optimi* (second best); and the remainder are termed οἱ πολλοι (the mob).

Wraxall, sir Nathaniel William, born in 1751, at Bristol, where his father and grandfather were merchants, was educated in his native city, and, in 1769, was sent to Bombay, in the service of the East India company. He was there employed, in 1771, as judge advocate and paymaster of the forces of that presidency. Next year he returned to England, and then travelled on the continent, visiting almost every country from Lapland to Lisbon. On his return, he sent to the press a Voyage round the Baltic (1775). In 1777, he published the History of the Kings of France, of the House of Valois (2 vols., 8vo.), and History of the Reign and Age of Henry III and IV, Kings of France (3 vols., quarto). In 1780, he was elected member of parliament for the borough of Hindon, in 1784, for Luggershall, and, in 1790, for Wallingford. His Memoirs of the Courts of Berlin, Dresden, Warsaw, and Vienna, were given to the world in 1799. While in parliament, he sometimes opposed Mr. Pitt, and at other times supported him. In 1813, he was raised to the dignity of a baronet, and, in 1815, published his last work, under the title of Historical Memoirs of His Own Time (2 vols., 8vo.). A story was introduced into this work respecting count Woronzow, the Russian ambassador, the truth of which the count denied; and, deeming the publication to be libellous, he had recourse to a criminal prosecution. It was tried in the court of king's bench, and sir Nathaniel was found guilty, and sentenced to a fine and six months' imprisonment. He died in 1831.

Wreath, in heraldry; a roll of fine linen or silk (like that of a Turkish turban), consisting of the colors borne in the escutcheon, placed in an achievement between the helmet and the crest, and immediately supporting the crest.

Wreck, in navigation, is usually understood to mean any ship or goods driven ashore, or found floating at sea in a deserted or unmanageable condition; but, in the legal sense of the word in England, *wreck* must have come to land: when at sea, it is distinguished by the barbarous appellations of *flotsam*, *jetsam*, and *ligan*. (See *Flotsam*.) In nothing, perhaps, has the beneficial influence of the advance of society in civilization been more apparent than in the regulations with respect to the persons and property of shipwrecked individuals. In most rude and uncivilized countries, their treatment has been cruel in the extreme. Amongst the early Greeks and Romans, strangers and enemies were regarded in the same point of view. (*Hostis apud antiquos, peregrinus dicebatur.—Pomp. Festus*; see also Cicero, *De Offic.* lib. i. c. 12.) Where such inhospitable sentiments prevailed, the conduct observed towards those that were shipwrecked could not be otherwise than barbarous; and, in fact, they were, in most instances, either put to death or sold as slaves. But, as law and good order grew up, and commerce and navigation were extended, those who escaped from the perils of the sea were treated in a way less repugnant to the dictates of humanity; and at length the Roman law made it a capital offence to destroy persons shipwrecked, or to prevent their saving the ship; and the stealing even of a plank from a vessel shipwrecked, or in distress, made the party liable to answer for the whole ship and cargo. (*Pand.* 47. 9. 3.) During the gloomy period which followed the subversion of the Roman empire, and the establishment of the northern nations in the southern parts of Europe, the ancient barbarous practices with respect to shipwreck were every where renewed. Those who survived were, in most countries, reduced to servitude; and their goods were every where confiscated for the use of the lord on whose manor they had been thrown. (Robertson's *Charles V*, vol. i, note 29.) But nothing, perhaps, can so strongly evince the prevalence and nature of these enormities as the efforts that were made, as soon as governments began to acquire authority, for their suppression. The regulations as to shipwreck, in the laws of Oleron, are, in this respect, most remarkable. The 35th and 38th articles state, that "Pilots, in order to ingratiate themselves with their lords, did, like faithless and treacherous villains, sometimes willingly run the ship upon the rocks, &c.;" for which offence they are held to be accursed and excommunicated, and punished as thieves and robbers. The fate of the lord is still more severe. "He is to be apprehended, his goods confiscated and sold, and himself fastened to a post or stake in the midst of his own mansion house, which being fired at the four corners, all shall be burned together, the walls thereof be demolished, the stones pulled down, and the site converted into a market-place, for the sale only of hogs and swine, to all posterity." The 31st article recites, that, when a vessel was lost by running on shore, and the mariners had landed, they often, instead of meeting with help, "were attacked by people more barbarous, cruel and inhuman than mad dogs; who, to gain their moneys, apparel, and other goods, did sometimes murder and destroy these poor distressed seamen. In this case, the lord of the country is to execute justice by punishing them in their persons and their estates, and is commanded to plunge them in the sea till they be half dead, and then to have them drawn forth out of the sea, and stoned to death." Such were the dreadful severities by which it was attempted to put a stop to the crimes against which they were directed. The violence of the remedy shows, better than any thing else, how inveterate the disease had become. The law of England, like that of other modern countries, adjudged wrecks to belong to the king; but the rigor and injustice of this law was modified as early as the reign of Henry I, when it was ruled, that, if any person escaped alive out of the ship, it should be no wreck: and, after various modifications, it was decided, in the reign of Henry III, that if goods were cast on shore, having any marks by which they could be identified, they were to revert to the owners, if claimed any time within a year and a day. By the statute 27 Edw. III, c. 13, if a ship be lost, and the goods come to land, they are to be delivered to the merchants, paying only a reasonable reward or salvage to those who saved or preserved them. But these ancient statutes, owing to the confusion and disorder of the times, were very ill enforced; and the disgraceful practices previously alluded to continued to the middle of the last century. A statute of Anne (12 Ann. st. 2, c. 18), confirmed by the 4 Geo. I, c. 12, in order to put a stop to the atrocities in question, orders all head officers, and others of the towns near the sea, upon application made to them, to summon as many hands as are necessary, and send them to the relief of any ship in distress, on forfeiture of £100; and in case of assistance given, salvage is to be assessed by three justices, and paid by the owners. Persons secreting any goods cast ashore, are to forfeit treble their value; and if they wilfully do any act whereby the ship is lost or destroyed, they are guilty of felony without benefit of clergy. But even this statute seems not to have been sufficient to accomplish the end in view; and, in 1753, a new statute (26 Geo. II, c. 19) was enacted, the preamble of which is as follows:—"Whereas, notwithstanding the good and salutary laws now in being against plundering and destroying vessels in distress, and against taking away shipwrecked, lost or stranded goods, many wicked enormities have been committed, to the disgrace of the nation, and the grievous damage of merchants and mariners of our own and other countries, be it, &c.;" and it is then enacted, that the preventing the escape of any person endeavoring to save his life, or wounding him with intent to destroy him, or putting out false lights in order to bring any vessel into danger, shall be capital felony. By the same statute, the pilfering of any goods cast ashore, is made petty larceny. By statute 1 and 2 Geo. IV, c. 75, it is enacted that any person or persons wilfully cutting away, injuring or concealing any buoy or buoy-rope attached to any anchor or cable belonging to any ship, whether in distress or otherwise, shall be judged guilty of felony, and may, upon conviction, be transported for seven years. The salvage, or the amount to be paid to those who have assisted in saving the wreck, is determined by the court of admiralty, who proportion the allowance to the risk and labor incurred. Sometimes as much as half the value of the property saved has been allowed. (For salvage in cases of recapture, see *prize*.)

Wrede, Charles Philip, prince of, a Bavarian field-marshal, and member of the Bavarian council of state, is descended from an ancient family in Baden, and was born at Heidelberg, in 1764. Baron von Wrede, in the wars of Austria against France, had an office in the commissariate from 1793 to 1798. In 1799, he received orders to form a Bavarian corps, to be connected with the army of the archduke Charles. This corps he commanded in the cavalry engagement at Fredericsfelde, on the Neckar, October 14, 1799. The ability which he displayed in 1799 and 1800, procured him, in the latter year, the rank of major-general: he fought as such in the battle of Hohenlinden. In 1804, he was made lieutenant-general. In 1805, he was made commander-in-chief of the Bavarian forces in the field, in the place of general Deroy, who was wounded. In the campaign of 1805, he often distinguished himself, and received, in 1806, the grand cross of the legion of honor. In 1807, he commanded the Bavarian forces in Poland, and, in 1809, the second division of the Bavarian army, with which he took part in the battles of Abensberg and Landshut. In the engagement at Neumarkt (the French general Bessières against Hiller), Wrede saved the army, which was already beaten. He took Salzburg, broke into Tyrol, occupied Inspruck, advanced, by forced marches, to Vienna, and contributed much to the victory at Wagram. After the peace, Napoleon made him count of the empire, and give him dotations in the Innvierthel. Having become general of the cavalry, he and Deroy commanded, in 1812, the Bavarian army in Russia. He fought at Pelotzk, and took the command after the advance of Wittgenstein, when Marmont and Gouvion St. Cyr had been wounded, and Deroy had fallen. He covered the retreat of the flying French army. In 1813, he led the newly-formed Bavarian army to the Inn, where, for a long time, he confronted the Austrians. October 8, he concluded the treaty of Ried, by which Bavaria joined the allies. He then took the command of the united Austrian and Bavarian troops, and led them to the Maine. He took Würzburg, and caused Frankfort to be occupied, when Napoleon, on his retreat from Saxony, arrived at Hanau. The battle of Hanau occurred October 30 and 31. (See *Hanau*.) On this occasion, he was seriously wounded. Having recovered, he commanded the fifth corps, took part in the battle of Brienne (February 1, 1814), and captured twenty-three cannons. He then beat Marmont, near Rosny, drove back Oudinot at Donnemarie, decided the victory at Bar-sur-Aube, and contributed much to that at Arcis-sur-Aube (March 20). In 1814, he was made field-marshal, and, June 9 of the same year, was made prince, and received a grant of Ellingen, a town and castle, with nineteen villages and sixteen hamlets, as a principality under Bavarian sovereignty. At the congress of Vienna, he showed himself a skilful diplomatist. In 1815, he again led the Bavarian army to France. Since 1819, he has taken part in the debates of the upper chamber. October 1, 1822, he was made generalissimo of the Bavarian army. In 1832, he was sent by king Louis into Rhenish Bavaria (q. v.), to quell the disturbances existing there.

Wren (*troglodytes*); a genus of birds, closely allied to the warblers, distinguished by their small size, slender beak, short and rounded wings, mottled plumage, and the habit of holding the tail elevated. The European wren is, with one exception, the smallest bird on that continent. It is fond of prying about crevices and holes in walls, ruined buildings, &c., and is constantly in motion, searching for insects, which form its accustomed food. It nestles in similar situations, or even under the eaves of houses. The winter wren, which visits us in the winter season, and sometimes remains till spring, is considered identical with the European species. The house wren of the U. States (*T. ædon*) is distinguished by its longer tail. It is one of our most familiar birds, from Canada to the gulf of Mexico, taking up its abode in the vicinity of dwellings; and its note is well known even in the midst of our most populous cities. The habits of all the wrens are more or less similar. We have some other species in the U. States.

Wren, sir Christopher, a celebrated English architect, was the son of the rector of East Knoyle, in Wiltshire, where he was born, in 1632. He entered as a student at Wadham college, Oxford, in 1646, previously to which time he had given proofs of his genius, by the invention of astronomical and pneumatic instruments. In 1647, he wrote a treatise on spherical trigonometry, upon a new plan, and, the following year, composed an algebraical tract on the Julian period. In 1653, he was chosen a fellow of the college of All-Souls. He was one of the earliest members of the philosophical society at Oxford, which was the origin of the royal society, after the institution of which, in 1663, he was elected a fellow, and distinguished himself by his activity in promoting the objects of that institution. In 1657, he was appointed professor of astronomy at Gresham college, but, on being nominated to the Savilian professorship of astronomy at Oxford, resigned the former office, and, in 1661, returned to the university. He received a commission, in 1663, to prepare designs for the restoration of St. Paul's cathedral, then one of the most remarkable Gothic edifices in the kingdom. To prepare himself for the execution of this great undertaking, he made a visit to France in 1665, and then finished the designs; but while they were under consideration, the cathedral was destroyed by the fire of 1666, and the plan of repairing it was relinquished. Wren had now an opportunity for signalizing his talents by the erection of an entirely new structure. The contemporaneous destruction of fifty parochial churches and many public buildings, also furnished an ample field for his genius; and he would have had the honor of founding, as it were, a new city, if the design which he laid before the king and parliament could have been adopted; but private interests prevented its acceptance. On the death of sir John Denham, in 1667, he succeeded to the office of surveyor of the works. He resigned his Savilian professorship in 1673. In 1674, he received the honor of knighthood; and, in the following year, the foundation of the new cathedral was laid. In 1680, he was chosen president of the royal society. In 1683, he was appointed architect, and one of the commissioners of Chelsea college; and, the following year, controller of the works at Windsor castle. He was elected member of parliament for the borough of Plympton, in 1685. To his other public trusts were added, in 1698, those of surveyor-general and commissioner for the repair of Westminster abbey, and, in 1699, that of architect of Greenwich hospital. In 1700, he represented in parliament the boroughs of Weymouth and Melcombe Regis. In 1708, he was made one of the commissioners for the erection of fifty new churches, in and near the city of London. After having long been the highest ornament of his profession, he was, in 1718, deprived of the surveyorship of the royal works, from political motives. He was then in the eighty-fifth year of his life, the remainder of which was devoted to scientific pursuits and the study of the Scriptures. He died February 25, 1723. His remains were interred, with the requisite honors, under the choir of St. Paul's cathedral; and on his tomb is a monumental inscription. It is as follows:—

Subtus conditur
Hujus Ecclesiæ et Urbis Conditor,
Christ. Wren;
Qui vixit Annos ultra nonaginta,
Non sibi sed Bono publico.
Lector, si Monumentum quæris,
Circumspice.

(Beneath is laid the builder of this church and city, who lived above ninety years, not for himself, but for the public good. Reader, if thou seekest his monument, look around.)

The edifices constructed by this architect were principally public, including a royal hunting seat at Winchester, and the modern part of the palace at Hampton court. Some of the most remarkable of his buildings, besides St. Paul's, are the monument on Fish street hill, the theatre at Oxford, the library of Trinity college, Cambridge; the hospitals of Chelsea and Greenwich; the church of St. Stephen's, Walbrook; those of St. Mary-le-Bow, St. Michael, Cornhill, and St. Bride, Fleet-street; and the great campanile of Christ-church, Oxford. Of his character as a man of science, we may accept the testimony of Newton, who, in his *Principia*, joins the names of Wren, Wallis and Huygens, whom he styles *hujus ætatis geometrarum facilè principes* (the greatest geometricians of the age). As an architect he possessed an inexhaustible fertility of invention, combined with good natural taste and profound knowledge of the principles of his art. His talents were particularly adapted to ecclesiastical architecture; in his palaces and private houses he has sometimes sunk into a heavy monotony, as at Hampton-court and Winchester. The interior of the church of St. Stephen's, Walbrook, which has been considered as his *chef-d'œuvre*, exhibits a deviation from common forms equally ingenious and beautiful. The monument is grand and simple; and St. Paul's cathedral, notwithstanding the severe criticisms to which it has been subjected, may be fairly reckoned among the most magnificent productions of architectural genius. Sir Christopher Wren's architecture is the perfection of that modern style, which, with forms and modes of construction essentially Gothic, adopts, for the purposes of decoration, the orders and ornaments of classical antiquity.—See *Parentalia, or Memoirs of the Family of the Wrens* (folio, 1750), published by his grandson, and Elmes's *Life of Wren* (4to., 1823).

Wright, Joseph, a celebrated English painter, usually styled *Wright of Derby*, was born in that town, in 1734. In 1751, he was placed under Hudson, the most celebrated portrait painter of the day, although of very moderate talents. He then visited Italy, where he made great advances in his profession, and, in 1755, returned to England. Having resided first at Bath, but afterwards at Derby, employed in portrait painting, at a mature age, he again visited Italy, and, on his return, in 1782, was elected an associate of the royal academy. His later pictures were chiefly landscapes, which are much admired for elegance of outline and judicious management of light and shade. A large landscape, a View of the Head of Ulleswater, stands at the head of his productions of this class; while, in the historical line, the Dead Soldier is sufficient to stamp him a fine painter. He fell a victim to his unwearied attention to his profession, dying of a decline, in 1797.

Wright, Thomas; a captain in the British navy, whose fate has excited much discussion. Having been employed to land the conspirators George Cadoudal (q. v.), Pichegru (q. v.), the Polignacs (q. v.), and others, on the French coast, in the years 1803 and 1804, captain Wright was soon after made prisoner of war; and, on the supposition that his evidence would be useful in procuring the conviction of Pichegru and Cadoudal, he was carried to Paris, and lodged in the Temple. He, however, declared himself ignorant of the plans of the conspirators, asserting that he merely obeyed orders in landing them in France. Reports were spread at the time, and of course believed, that he was put to the torture, by order of Napoleon, to force him to confess, and that Réal (q. v.) and Dubois were the instruments of the emperor in this act. In 1805, his exchange was consented to; but, in November, the *Moniteur* announced that he had been found dead in prison, having cut his own throat from impatience and despair. The enemies of Napoleon, and particularly the English, on the other hand, loudly charged the death of the prisoner to the emperor, who, as it was pretended, had been induced to commit this foul act to prevent a public exposure of the treatment to which captain

Wright had been subjected in the Temple. Others have imputed the murder to Savary, Fouché and Réal, to whom the same motive—a desire of concealing their conduct towards the prisoner—has been imputed. While at St. Helena, doctor Warden mentioned the subject to Napoleon, and told him that it was pretty generally believed in England, that he had caused captain Wright to be put to death. "Why should I have committed such an act?" replied the emperor. "Of all men whom I have had in my power, he was the person whom I should have been most desirous to preserve; for, in the trial of the conspirators, which was then going on, Wright was the most important witness, as he had brought the chief conspirator, Pichegru, into the country." Napoleon also declared that Wright perished by his own hand, some time before his death was announced in the *Moniteur*; and Fouché and Savary agreed in this statement. (See *Savary*; *Otranto, Duke of*; and *Pichegru*.) The trial, however, took place in March, April and May, 1804, and the death of Wright in October, 1805. Savary, in his Memoirs (2 vols., 8vo., London, 1828), has the following remarks on this subject:—"That unfortunate man remained in the Temple till 1805, when he died. So many stories have been told concerning his death, that I, too, was curious to learn the cause of it, when, as minister of police, the sources of information were open to me; and I ascertained that Wright cut his throat in despair, after reading the account of the capitulation of the Austrian general Mack, at Ulm; that is, while the emperor was engaged in the campaign of Austerlitz. Can one, in fact, without alike insulting common sense and glory, admit that this sovereign had attached so much importance to the destruction of a miserable lieutenant of the English navy, as to send, from one of his most glorious fields of battle, the order for his death? It has been added, that it was I who received from him this commission. Now, I never quitted him, for a single day, during the whole campaign, from his departure from Paris till his return. The civil administration of France is in possession of all the papers of the ministry of the police, which must furnish all the information that can be desired respecting that event."

Wrinkles; folds of the skin, occasioned by that organ being too large for the parts it encloses. When, therefore, the parts beneath the skin, in any part of the body, are diminished from any cause, and the skin itself does not shrink in the same proportion, wrinkles are formed. So, when the skin is too much relaxed, or when it is moved very often, the same result is produced. Hence sickness, age, and the indulgence of violent passions, produce wrinkles. Warm bathing, by relaxing the skin, has the same tendency.

Wrist (*carpus*). The part of the arm between the fore-arm and hand is admirably calculated to increase the action, and, consequently, the utility of the hand, by giving it various motions, without which, as any one may easily convince himself, it would be a much less efficient instrument of handling, seizing and conveying objects. It is composed of eight small bones in two rows, the motions of which on the fore-arm may be described as those of flexion, extension, adduction, abduction and circumduction. Beasts of prey, which use their fore-paws for seizing their food, are provided with similar instruments of motion in that part; but in those animals, like the horse, &c., in which the fore-feet are merely instruments of locomotion, there is no such machinery for free motion in various directions.

Writ. A writ is a precept issued by some court or magistrate in the name of the government, the executive branch of the government, or that of the state, or people of the state, intending, in either case, the supreme authority or its representative, addressed to a marshal, sheriff, constable, or other subordinate executive officer, commanding him to do some particular thing. Writs are distinguished into *original* and *judicial*, the former being such as a party sues out without any direction of the court in the particular case; the latter, such as are issued in pursuance of a decree, judgment or order of a court. The different descriptions of writs are too numerous to be specified and described in this article. The term *writ* is, however, not confined to the proceedings in a suit; for there are writs of election, ordering certain officers to be chosen; writs in the nature of a commission, for instance, summoning one to be chief justice (2 Coke's *Ins.* 40), or to take the degree of serjeant at law; so there are writs of protection, issued, for instance, to secure a person from arrest while he is attending as a party in a suit. In England, writs usually issue in the name of the king; in the U. States, in that of the chief magistrate, or the people, or the government.

Writs of Assistance. (See *Adams, John*, and *Otis, James*.)

Writ of Error is a commission to judges of a superior court, by which they are authorized to examine the record upon which a judgment was given in an inferior court, and, on such examination, to affirm or reverse the same according to law.

WRITERS, or CLERKS TO THE SIGNET; a numerous society of gentlemen of the law in Scotland, who are chiefly employed in civil and criminal trials before the courts of session and judiciary.

WRITING; the art of expressing, by visible signs or characters described on some material, thoughts, feelings, or musical tones. With modern civilized nations, it signifies more especially the art of representing by certain characters the tones of which our speech consists; that is, of representing ideas by phonetic signs. Metaphorically, it is applied to style and composition, as the instrument of conveyance is often taken for the thing conveyed. Writing, if required by law for certain purposes, means now, in most countries, the expression of ideas by pen and ink, pencil writing being generally considered invalid. The supreme court of Massachusetts has construed the provision, in the constitution of that state, requiring written votes, to include printed votes. This may be in accordance with the spirit of the constitution; but it gives a great latitude to the word *writing*. The art of writing, especially when reduced to simple phonetic alphabets like ours, has, perhaps, done more than any other invention for the improvement of the human race. It may, like other great blessings, have been attended with some evils; but it has been the most efficient means of raising mankind from barbarism to civilization. Without its aid the experience of each generation would have been almost entirely lost to succeeding ages, and only a faint glimmer of truth could have been discerned through the mists of tradition. For this reason, and because, in the earliest ages, almost all knowledge is concentrated in the caste of priests, it is easily explainable that the art of writing is considered, in the earliest periods of history, as something sacred, and believed to have been brought by the gods to men, or to have proceeded from immediate inspiration, as in the case of the Greek Cadmus. If the art of tilling the ground was deemed so great a blessing that the gods were represented as having taught it to men, how much more must mankind have been inclined to refer the art of writing—the great source of civilization—to the same origin, after the slow process of its developement had been forgotten! We have spoken of the probable mode of its developement in the article *Hieroglyphics*, and will only add here a few remarks, which were promised in that article.—The picture-writing of Mexico, discovered when that country was conquered by the Spaniards, is one of the most interesting monuments of the progress of civilization, and the developement of the human mind. Spineto, in his Lectures on the Elements of Hieroglyphics and Egyptian Antiquities, describes a specimen of Mexican hieroglyphics, which he saw in the library of the Escurial, and which was imported to Europe by a Mexican, who translated it into Spanish. The title of the book is, History of the Empire of Mexico, with Notes and Explanations. An account of it, taken from Lecture vii, is here subjoined:—"The translation is divided into three parts. The first is a history of the Mexican empire, containing the biography and conquests of not less than eleven kings: the second is a regular roll of the several taxes which each conquered province or town paid to the royal treasury; and the third, a digest of their civil law, the largest branch of which was of their common law, or *jus patrium*. In each of these pictures every king is represented by different characteristics: the length of his reign is marked by squares round the margin, which, when the reign happens to be extremely long, fill the four sides of the picture. In each square there is a small circle to signify the year—a mark which they repeat according to its number till they reach thirteen, after which they begin over again to count one; and under these small circles there is a kind of hieroglyphic figure, which is repeated in every fourth square. In all the pictures that exhibit the reign of each king, there is a figure which shows the nature of his government, and, therefore, varies according to the circumstances and the events that took place during his reign. In this picture it is a shield or a target, crossed by four lances, which means that this king subdued, by force of arms, four towns or people. They are expressed by four rough drawings of a house, to which a symbol, or hieroglyphic figure, denoting the name of each, has been attached. In the first, we have a tree; in the second, another tree of a different sort; in the third, a kind of basket; in the fourth, a sort of box, with two baskets. These exhibitions I am unable to explain; but they, no doubt, were perfectly intelligible to the people, and perhaps might have had a reference to the natural productions of the subdued provinces. To mark the beginning of the reign, and the different epochs in which a king performed any of the actions mentioned in the picture, or even his death, they painted the figure of the king, with his characteristic emblem, which denotes his name, opposite to the year in which the event had taken place. Thus, in this picture, the king's name is said to be Acamapichtli, and his figure is repeated twice; opposite, the first square, which marks the beginning of his reign, and opposite, the eighth square, which shows that in the eighth year of his reign he put to death the chiefs of the four towns he had conquered. This circumstance is expressed by four heads placed before him, distinguished by the same hieroglyphical characters which mark the towns or provinces over which they reigned. Across the figure of the king there is a kind of sash, with a knot on his shoulder, which, by its length and breadth, means the number of wives and children he had. In the present instance, it seems not to be deficient in either of these dimensions. I am told that there is another mark to express the quality and number of children, whether male or female; but, to confess my ignorance, I could never discover it, although I have observed all the pictures of the several reigns recorded by this curious piece of history, with all possible attention. To the picture of each reign a second picture was invariably attached, which indicated the other actions of the sovereign as a politician, and the other events that had distinguished his government. The whole account given by Purchas is curious and highly amusing. In recording the tribute or taxes which each town had to pay, as it was paid in kind, it seems that the Mexicans had adopted the plan of drawing the figure of the object. Thus, to represent a basket of cacao-meal, or of any other sort of corn, they drew the figure of a basket containing the ears of corn, or the meal extracted from the fruit of that tree or plant. To represent suits of military clothing, armor, or shields, they exhibited their respective figures: the different sorts of mantles, whether of feathers or of other materials, were signified by their respective figures, differently colored. The number of each article was expressed either by circles, each of which signified ten, or by a kind of pine-apple, which meant five, painted at the top of the basket, or by the side of each individual article; and if their quantity was so great as to amount to a burthen, or a load, this was expressed by another mark, which had the same signification. The like must be said of their paper, their cups, pots of honey, cochineal, wood, planks, beams, timber, loaves of salt, hatchets, lumps of copal, refined and unrefined, shells, wool, stones, canes to make darts, eagles, skins of animals; in short, of every thing which each town had to pay for the maintenance of the state. It would be impossible for me to give a minute account of their civil and religious institutions, which form the third, and by far the largest department, in this most extraordinary picture. Every trade, every office, every employment, is differently delineated. The rites attending the several ceremonies of burial, marriage, and baptism (for they certainly had some sort of baptism), are minutely set down. But, above all, it seems that the education of children, from their infancy to manhood, had attracted the greatest attention of their legislature. The quantity of food, the quality of labor, the different pursuits attached to each distinct age, the various punishments decreed for the different faults, are stated with a precision and clearness which is quite astonishing. The age of the child can always be made out from the number of circles placed above its head; the figure of the mother, and, indeed, of any woman, by her kneeling posture, and sitting on her legs; while the figure of the father, the priest, the teacher, and, indeed, of all men, besides the different attributes which designate the employment, is always represented either standing, or sitting on a low stool, with his knees to his breast." Spineto here introduces, as a specimen, a table, which represents all the following ceremonies of a marriage. "This [the marriage] was generally brought about by an old woman, whom they call *Amantesa* (that is, a marriage-broker), who was to carry the bride on her back to the house of the bridegroom, at the beginning of the night, accompanied by four women bearing torches of pine-tree. When arrived at the house, the bride and the bridegroom were seated near to the fire on a mat, the woman, as usual, sitting on her legs, the man on a stool. There they were tied together by the corner of their garments; after which they offered to their gods a perfume of copal, two old women and two old men being present as witnesses. This ceremony over, they were allowed to dine upon two different sorts of meat, and some pulse. Thus, not only the dishes to be used were marked, but also the cup out of which they were to drink. The witnesses were allowed to dine after the newly-married couple, which circumstance is expressed by their being seated at the four corners of the mat, which served for a dining-table. The sign which is added to the mouth of these four witnesses signifies that, before they retired, they had the right to give, and, in fact, they gave, to the married folks good counsel how to behave themselves, that they might live in peace and happiness. The position of one of the women, holding up her right hand, means that the portly matron is already making use of the privilege allowed to give a little exercise to her tongue; while the folded arms of the remaining witnesses prove that they are waiting for their turn. In the punishment of their children, the Mexicans seem to have been ingeniously cruel. Most of the chastisements I find marked down, consist in unmerciful castigations; in driving into the hands, and arms, and legs, and into the body of the culprit, thorns and prickles. Sometimes they singed his head with fire; at other times they tied him down to a board, and threw him into a bog; and occasionally they held the head and nose of the unfortunate child upon the smoke of a particular wood, which they called *axi*. The crimes for which they inflicted punishments so severe and so cruel are the same with those which are condemned by the laws of the most civilized nations of Europe, and cannot but inspire us with a very favorable, nay, exalted opinion of the moral notions of the Mexicans. They seem even to have gone beyond us for the sake of preserving proper habits of industry and morality among the people; for they not only punished drunkenness with death, but also idleness; for if drunkenness, said they, renders a man capable of committing a crime, idleness exposes him to drinking and to bad company. This law, however, lost its power with men and women as soon as they reached the age of seventy: they were then allowed to pass their lives in idleness, and to get drunk, both in public and in private. The reason assigned for this extraordinary regulation is, that, as they could no longer work, and had but a short time to live, the law indulged them with the enjoyment of what seems to have been considered, by the Mexicans, as one of the greatest pleasures of life. Such is the short account that I can give of this most singular mode of expressing ideas by pictures, which is, I think, an exemplification of the first mode of writing by hieroglyphics. It is, besides, one of the most interesting monuments by which we can arrive at the knowledge of the history of Mexico: for it is evident, that from the wisdom of their regulations; from the quantity of taxes, which, as is recorded in these pictures, were levied upon the different towns and nations; from the minuteness of the details; and from the pictures themselves, which show some knowledge of perspective and drawing,—the Mexicans had made no inconsiderable progress in knowledge, in civilization, and in the cultivation of the arts." To this, professor Stuart adds the following observations in his son's (Mr. Isaac Stuart) translation of Greppo's Essay on the Hieroglyphic System, &c. (Boston, 1830). "The whole of the above symbols much more resemble the anaglyphs of the Egyptians than they do the common hieroglyphics, figurative or tropical. That they are totally diverse from phonetic hieroglyphics, need not be said. The combination of so many symbols, some of which have no resemblance, but a merely conventional or imaginary one, is a trait altogether of a nature similar to the predominating quality of the anaglyphs. There is some special interest attached to the subject now before us. In connexion with what has been before said, it shows that three of the most distinguished nations of three different continents, namely, the Chinese in Asia, the Egyptians in Africa, and the Mexicans in America, have all hit on the like expedients to transmit their ideas to posterity. In all these facts, too, we may see the infancy of alphabetic writing, the germ from which this tree sprung, whose leaves are for the healing of the nations." We have pointed out, in the article *Hieroglyphics*, the mode in which the important step was made from picture-writing to a phonetic alphabet. We would refer the reader, for further information upon this interesting subject, to the eighth and ninth lectures of the above-mentioned work of the marquis Spineto; to which we will add here the remark of professor Stuart, in the translation of Greppo by his son, already cited. He says, "There are some striking resemblances between the Chinese signs employed in writing and the Egyptian hieroglyphics; so striking that some have been led to suppose that one of these nations must be a colony of the other. It is now well known that the original written characters of the Chinese were imitative or figurative, and that they were few in number. These have, in process of time, been modified and changed, both as to form and use, so that scarcely a vestige now remains of their original appearance, and, in some cases, of original usage. All the Chinese writing was originally ideographic; that is, it resembled the figurative and tropical hieroglyphic method of the Egyptians. But now, as stated by that excellent Chinese scholar, Abel Remusat, in his Chinese Grammar, p. 4, at least one half of the Chinese characters are merely phonetic, or alphabetic, in the sense of syllabic. These the Chinese call *hing-ching*, that is, representing sound. In the next place, the Chinese have an order of characters which they name *hoeï-i* and *kia-tsieï*, which are designed to express abstract and intellectual ideas. These resemble, of course (not in form, but as to use), the tropical hieroglyphics of the Egyptians. But, on the other hand, there are some striking differences between the hieroglyphic system of writing and that of the Chinese. The Chinese characters are divided into primitive, or simple, and derived, or composite. Of the first, called *siang-hing*, which make the elements of all their writing, there are only about two hundred (Remusat's *Grammar*, p. 1, note 2), while the Egyptian hieroglyphics amount to more than eight hundred (*Précis*, p. 267). The derived or composite characters of the Chinese are exceedingly numerous; and in these are combined two or more simple characters. The combination oftentimes is very complex, and not a little difficult for a learner to decipher. These are called *hoeï-i*. On the contrary, in Egyptian, the combination of proper hieroglyphics is very rare; indeed, it scarcely ever takes place, and when it does, it is in such a way that the elements of the combination are preserved entirely separate; as, for example, in the anaglyphs above described. These striking points of difference serve to show that although the figurative hieroglyphics of the Egyptians, and the *siang-hing*, or original simple characters of the Chinese, were alike (for such must be the case, inasmuch as both were pictures or imitations of sensible objects), yet, in the course which the two nations respectively chose, in order to represent abstract and intellectual ideas, there was a great diversity; hence the tropical characters of the Chinese, compounded of the simple ones, and diversified to an almost endless extent, are very different from the tropical characters of the Egyptians, which continued to be simple in their structure, and, in general, incapable of combination. That light may yet be cast on the invention of proper alphabetic signs, from a diligent and extensive collation of Egyptian and Chinese characters, and a better understanding of the true nature and history of each, every lover of literature will continue to wish and to hope." To illustrate another very important step in writing, that of expressing grammatical forms by hieroglyphics, alluded to in the article *Hieroglyphics*, we extract the following passage from the fifth Lecture in Spineto's work: "The marks of the genders are, a square, either plain or striated, for the masculine, and half a circle for the feminine. The plural is almost invariably expressed by a simple repetition of the [hieroglyphical] units: to these units sometimes is added a quail: all of these stand for the syllable *noue*, or *oue*, which is the termination added to the plural: for instance, the word *soten* signifies *king*; and, by the addition of *noue*, we have *so-tenoue* (kings); *noyte* (god), *noytenoue* (gods); and the like. In regard to the genders, it seems the Egyptians also expressed them by employing the pronouns *of him*, *of her*; and these pronouns were represented by the figure of an undulating line over a serpent, or over a broken line. In the first instance, the group represented the pronoun *his*, or *of him*, which, in Coptic, was *nev*, or *nef*; in the second instance, the group stood for the pronoun *hers*, or *of her*, which, in Coptic, was called *nes*." These terminations, or an abbreviation of them, if added to hieroglyphic expressions, would make them either of the masculine or feminine gender: "For example, the *chenalopex*, that is, the *goose*, or the *egg*, are the phonetic hieroglyphics expressing the word *child*; for both of them represent the letter *s*, which is an abbreviation of the word *se*, or *tse* (son, child): therefore if to the bird or to the egg we add the figure of the serpent, or the broken line, we shall have, in the first instance, the group signifying *son of him*, or *his son*; and, in the second, *son of her*, or *her son*. The genitive case is expressed mostly by an undulating line added to a group. This hieroglyphic stands for the letter *n*, and, on those occasions, is taken as an abbreviation of the syllable *nen*, which is the invariable termination of the genitive case in the Coptic language. The Egyptians distinguished the third person singular of the present tense in the same way as we do in the English language, by adding the letter *s* to the word, such as *he does, he writes*. The figure of the serpent, which stands for the letter *s*, is a mark of the third person singular of the present tense." Champollion has found a number of other hieroglyphics, which exhibit the inflections of verbs; but they are not yet all accurately determined. "The passive participle was represented by two hieroglyphics, the horn and the half circle. The pronoun *this* was exhibited by a vase and a perpendicular line. The pronoun *who* or *which* was represented by a vase and half a circle. Such are some of the principal and most important grammatical forms or phrases." It may be made a question whether phonetic alphabets are all derived from a common source, or whether different nations, in the gradual progress of improvement, were led to this great invention without mutual communication. If the latter supposition be correct, the similarity of these alphabets in the oldest languages would be owing to the similarity in the minds of men, and in the processes of their developement; but in either case, after phonetic characters were invented, they would naturally assume a great variety of forms, being merely arbitrary signs. Such we find to be the fact. A considerable number of ancient alphabets still exist, such as the demotic, hieratic and hieroglyphic characters of the Egyptians, the old Phœnician, Punic, Etruscan, Greek, Runic (q. v.), Cufic (q. v.), arrow-head characters, and a number of others. The last are also called by some the *wedge characters*, because the lines of which they consist are so put together as to have a wedge-like form. This species of writing is found upon some ancient monuments of Persia and Babylonia. The arrow-head characters may be divided into two principal classes, the Persian and Babylonian, or the Median and Chaldean, of which the former has again three, the latter two subdivisions. The Persian arrow-head characters are found in the ruins of Pasargadæ and Persepolis, in the valley of Murgab near Fasa in Persia, in the ruins of Susa and Babylon; and, in most of these cases, inscriptions in all three characters stand word for word one under the other. The Babylonian arrow-head character, however, never appears, except alone, on the various kinds of tiles and other bricks and stones in the ancient Babylon; also on gems and cylindrical amulets. All these sorts of inscriptions are read horizontally from left to right, are phonetic, and comprise some characters for parts of words and monograms. As yet the various attempts to decipher these inscriptions have proved unsuccessful.—See *The Assyrian Wedge-Character explained*, &c., edited by Dorow (Wisbaden, 1820, in German).—Not only the character of the various alphabets differ, but also the order in which the characters are connected, or, which is the same thing, the way in which the writing is to be read. The most ancient ways of writing include, 1. Cionædon, or column writing, in which the letters and words stand one under the other, as is the case with the Chinese writing, and with the Egyptian hieroglyphics; 2. the Boustrophedon (q. v.), or furrow writing, which proceeds, like the furrows of the plough, alternately from right to left, and from left to right; 3. Sphærædon, or circular writing. The various materials used for writing have been stones, metals, bark and leaves, wood, wax, ivory, shells, linen, skins of animals, parchment, Egyptian papyrus, cotton paper, and paper made of rags. The instruments for writing have been chisels, styles of iron or bone, reeds and quills. Ink was made, in ancient times, of the liquor of the cuttle-fish, of cinnabar, &c. Down to the invention of the art of printing, the calligraphers and stenographers formed professions. (See *Stenography*.) Of the papyrus, sheets (*scapi*) were formed; of these, rolls (*volumina*) were made, wound round a staff of box-wood, ivory or gold, to which the ends of the rolls were glued. Square books are said to have come into vogue in the time of the kings of Pergamus. (See *Manuscripts*, and *Palæography*.) It is highly probable that the Greeks received the art of writing from Egypt, either directly or through the Phœnicians. The Greeks say that Cadmus brought them the first alphabet, consisting of sixteen letters, according to Pliny the following:—Α, Β, Γ, Δ, Ε, Ι, Λ, Μ, Ν, Ο, Π, Ρ, Σ, Τ, Υ. To these Palamedes (q. v.) added Θ, Ξ, Φ, Χ; and Simonides (q. v.) again added Ζ, Η, Ψ, Ω. It ought to be observed that the Samaritan letters did not differ from the Greek. Originally the Romans wrote only with uncial characters. In the ancient manuscripts found at Herculaneum, and especially in the Greek manuscripts, all the words are written in uncial characters, and are neither separated by points nor spaces. There is nothing to indicate the division of the words. No sign is met with, which might assist in the pronunciation. The signs of punctuation did not begin to be used until the knowledge of the Greek language was lost. (See Winckelmann's *Letters on Herculaneum.*) With the conquests of Rome, the art of writing, and particularly the Roman alphabet, were more and more widely spread; but great difficulties were found to attend the attempts to write down the languages of particular countries with characters adapted to another language; i. e. to other sounds. Such attempts were not often made by the Romans; but when the missionaries spread themselves through the countries of Europe, and found it necessary to give instruction in writing, as well as to prepare translations of the Gospels into the various idioms, we meet every where with complaints of the difficulty, and sometimes the impossibility, of rendering the native sounds by the already existing alphabet. The reason is clear. In some instances, the sounds may have been so rude, and so little different from the cries of animals (as is sometimes the case with the language of savages), that they could not be expressed by signs for articulate sounds: sometimes the tones were totally different from those for which the alphabet had been made. This circumstance has produced a great effect on the orthography of these languages, and, in our opinion, in various cases, on the languages themselves. Certain differences between sounds have been lost in consequence of the want of characters to designate them, as appears from a variety of facts. The same complaints, which were made in the first centuries of Christianity, respecting the difficulty of ascertaining the true sound of the native words in some instances, and of writing them with Latin characters, are now made by the missionaries in the South sea islands, &c. And if it was difficult to adapt the Latin alphabet to foreign idioms, how much more difficult must it be to adapt the English orthography—certainly the most preposterous existing—to different classes of languages! It was, therefore, a very useful undertaking of Mr. John Pickering to prepare an alphabet fitted to convey all the sounds which commonly occur in the various languages. This alphabet has been adopted by the war department of the U. States for the writing of the Indian languages, and by the missionaries in the South sea islands. It is given at the end of this article. Respecting the alphabets used at various times in Great Britain, Mr. Astle observes that, after the most diligent inquiry, it doth not appear that the Britons had the use of letters before their intercourse with the Romans; and though, from the coming of Julius Cæsar till the time when the Romans left the island, in the year 427, the Roman letters were familiar to the eyes of the inhabitants, he is of opinion, that writing was very little practised by the Britons till after the coming of St. Augustine, about the year 596. The writing which prevailed in England from this time to the middle of the eleventh century, is generally termed *Saxon*, and may be divided into five kinds; viz. the Roman-Saxon, which is very similar to the Roman, and prevailed in England from the coming of St. Augustine till the eighth century; the set Saxon, which took place towards the middle of the eighth century, continued till about the middle of the ninth, and was not entirely disused till the beginning of the tenth century; the running-hand Saxon, which came into use towards the latter end of the ninth century, when learning was diffused in England under the auspices of king Alfred, in whose reign many books were written in that island in a more expeditious manner than formerly; the mixed Saxon, occurring in the ninth, tenth, and in the beginning of the eleventh centuries, in many manuscripts which were written in England in characters partly Roman, partly Lombardic, and partly Saxon; and the elegant Saxon, which took place in England early in the tenth century, lasted till the Norman conquest, but was not entirely disused till the middle of the twelfth, and is more beautiful than the writing in France, Italy and Germany during the same period. The writing introduced into England by William I is usually called *Norman*, and is composed of letters nearly Lombardic, which were generally used in grants, charters, public instruments and law proceedings, with very little variation, from the Norman conquest till the reign of king Edward III. About the reign of king Richard II, variations took place in writing records and law proceedings. The charters from the reign of king Richard II to that of king Henry VIII, were composed partly of characters called *set chancery* and *common chancery*, and some of the letters called *court-hand*; which three different species of writing are derived partly from the Norman and partly from the modern Gothic. The modern Gothic began to take place in England in the twelfth century; the old English about the middle of the fourteenth century; and set chancery and common chancery in the decline of the same century, and are still used in the enrolments of letters patent, charters, &c., and in exemplifications of recoveries: the court-hand was contrived by the English lawyers, and took its rise about the middle of the sixteenth century, and continued till the beginning of the reign of George II, when it was abolished by law. The court-hand characters were nothing more than the Norman characters very much corrupted and deformed. In the sixteenth century, the English lawyers engrossed their conveyances and legal instruments in characters called *secretary*, which are still in use. The French call their writings by the names of the different races of their kings, in whose times they were written: these were, the Merovingian, the Carlovingian, the Capetian, the Valesian, and the Bourbon.—The manuscripts written in the northern parts of Scotland and in Ireland are in characters similar to the Saxon. It seems probable, that the interior parts of Europe were immediately peopled from the northern parts of Asia, and the maritime parts from Phœnicia, and the southern and western parts of that quarter of the globe. If this be the case, it is not surprising that some Eastern customs prevailed in Great Britain and Ireland, and that many Celtic words are still preserved both in the Irish and in the Welsh languages. The Norman characters, it is observed, were generally used in England from the coming of William I; and the Saxon characters were entirely disused in the very beginning of the twelfth century; but the Irish and Scots preserved the ancient forms of their characters till the end of the sixteenth century. The Gaelic or Erse language, used in the Highlands of Scotland, and the Hiberno-Gaelic, are nearly the same; and their letters are similar to each other; as Mr. Astle has shown by various specimens. The curious will find much information on the subject of this article in Astle's Origin and Progress of Writing (4to., 1784). The German alphabet was formed by Kero and Ottfried, in the time of Charlemagne. German was first written with Latin letters. In fact, most writings of that time, as forms of laws, treaties, &c., were even drawn up in the Latin language. The thirteenth century is generally considered as the time when German characters became common, under the emperor Frederic II. Others assume a later period. Germany has, as Mr. Breitkoph observes, but two national alphabets, the (so called) *fractur* and the *current*. Fractur characters were formed out of the (so called) new-Gothic and monastic characters, which sprung up in the eleventh century. It was not till the fifteenth century, that the current or cursive characters were used in printing. Before that time, straight characters only had been used in printing; but the elder Aldus Manutius (q. v.) made types for the cursive character. Albert Dürer (q. v.) at last settled the proportions for the German characters. In diplomatics (q. v.), the knowledge of the letters used at different periods is very important. They have been classified, &c.—See *La Nouvelle Diplomatique*; also Weber's *Essay towards a History of the Art of Writing* (in German, Göttingen, 1807).—We have said above, that the alphabets of Europe, and, in fact, most, perhaps all, alphabets now existing, are phonetic (see the article *China*, division *Chinese Language*, *Writing*, &c.); and it is interesting to know what articulate sounds are used to express the thoughts and feelings of man. We have touched upon this subject in the article *Voice*, and add here a synoptic table of the English elementary sounds, as they really exist in the English language, however they may be written. This table is taken from the article *Sound*, written by Mr. Herschel for the *Encyclopædia Metropolitana*. The syllables which contain the sounds referred to, are printed in italics, where words of more than one syllable are introduced.

1. { – Rook; Julius; Rude; Poor; Womb; Wound; *Ou*vrir (Fr.).
   { ⌣ Good; Cushion; Cuckoo; Rund (Germ.); Gusto (Ital.).
2. Spurt; *Assert*; Dirt; *Vir*tue; Dove; Double; Blood.
3. Hole; Toad.
4. { – All; Caught; *Or*gan; Sought; Broth; Broad.
   { ⌣ Hot; *Com*ical; *Kom*men (Germ.).
5. Hard; *Bra*ten (Germ.); *Char*latan (Fr.).
6. Laugh; Task.
7. Lamb; Fan; That.
8. Hang; Bang; Twang.
9. Hare; Hair; Heir; Were; Pear; Hier (Fr.); *Leh*ren (Germ.).

10. Lame; Tame; Crane; Faint; *Lay*man; Meme (Fr.); *Städ*chen (Germ.).
11. *Le*mon; Dead; Said; *A*ny; *E*very; Friend; *Be*sser (Germ.); *É*loigner (Fr.).
12. *Li*ver; Dim*i*nish; Persevere; Believe.
13. Peep; *Lea*ve; Bel*ie*ve; S*ie*ben (Germ.); Coq*ui*lle (Fr.).
14. s; *si*bilus; *ci*pher; the last vowel and the first consonant.

True Diphthongs.

1. Life; The Sounds No. 5 and No. 13, slurred as rapidly as possible, produce our English *i*, which is a real diphthong.
2. Brow; Plough; *Lau*fen (Germ.). The vowel Sound No. 5 quickly followed by No. 1.
3. Oil; *Käu*en (Germ.); No. 4 succeeded by No. 13.
4. *Rebuke*; Yew; You; No. 13 succeeded by No. 1.
5. Yoke; No. 13 succeeded by No. 3.
6. *Young*; *Yea*rn; *Hea*r; *He*re; No. 13 succeeded by No. 2, more or less rapidly.

The consonants present equal confusion. They may be generally arranged in three classes: sharp sounds, flat ones, and indifferent or neutral; the former two having a constant relationship or parallelism to each other, thus:

Sharp Consonants. S. *sell*, *cell*; σ. (as we will here denote it) *shame*, *sure*, *schirm* (Germ.); θ. thing; F. *fright*, *enough*, *phantom*; K. *king*, *coin*, *quiver*; T. *talk*; P. *papa*.

Flat Consonants. Z. *zenith*, *casement*; ζ. plea*su*re, *j*ardin (French); ⊟. the *th* in the words *the*, *that*, *thou*; V. *vile*; G. good; D. *duke*; B. *babe*.

Neutral Consonants. L. *lily*; M. *mamma*; N. *Nanny*; ν. hang; to which we may add the nasal N in *gnu*, *Ætna*, *Dn*ieper, which, however, is not properly an English sound; R. *rattle*; H. *hard*.

Compound Consonants. C, or Tσ, *church*, *ci*cerone (Ital.), and its corresponding flat sound J or D, ζ. *j*est, *gen*der: X. *ex*treme, Xer*xes*; ξ. *ex*asperate, *exalt*, Xerxes; &c. &c.

We have here a scale of thirteen simple vowels and twenty-one simple consonants,—thirty-three in all,—which are the fewest letters with which it is possible to write English. But, on the other hand, with the addition of two or three more vowels, and as many consonants, making about forty characters in all, every known language might probably be effectually reduced to writing, so as to preserve an exact correspondence between the writing and pronunciation. In addition to this table, the note which Mr. Pickering, of Boston, added to his proposed alphabet, which, as we have stated, is now adopted in some cases, is of great interest, as showing how the vowel sounds run into one another—a subject which we have had occasion to touch upon in the various articles relating to the vowels in this work. It is to be found, together with his alphabet, in the fourth volume of the Memoirs of the American Academy (Cambridge, 1818), and is given below.* The alphabet itself is as follows:

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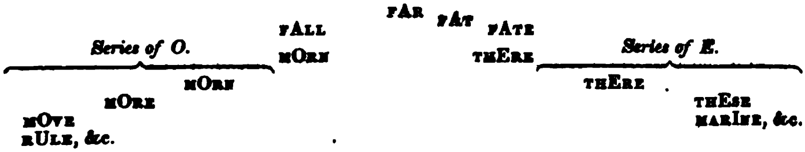
* In considering the several letters by which the vowel sounds are represented, both in our own and other languages, it will be perceived, that each of them may be taken as representing, not a single sound, but a series of sounds, which series will be more or less extensive according to the genius of different languages; and it will be further observed, that each series gradually runs into the adjoining series (if we may so speak), by such slight and delicate modifications, that it is a matter of no small difficulty, in many cases, to decide in what part of any one series we should drop the vowel character with which we begin, and take another to continue the sounds of the next series: in other words, it is not easy to determine at what point one series ends and another begins. For example: if we take the letter *a*, we may assume the sound which it has in the word *father*, as the middle point of a series, the whole of which (beginning with the broad *a* in *fall*, and ending with the narrow or slender *a* in *fate*) we denote in English by this one character, thus:—FALL—FAR—FAT—FATE; and these are all the sounds in this series, which philologists designate in our own language by this one letter. But if we extend our view to other languages, we shall find various intermediate sounds between the two extremes of this same series; for example, between the sounds of our *a* in *fall* and in *far*, we find in the French language the *â* in *pâle*, *mâle*, &c., which can only be described, on paper, as a sound between our two, and which is seldom attended to by foreigners in speaking French. Now, if we should minutely examine a number of languages, and should endeavor to arrange accurately, in one progression, all the vowel sounds belonging to this series, we should doubtless discover in those languages many other slight modifications intervening between the different members of our English series.

Table of the Alphabet.

A as in the English words *far*, *father*, &c. (But see the note on the vowels.)
B as in English, French, &c.
D (*the same*).
E as in the English word *there;* and also short *e*, as in *met*, &c.
F as in English, &c.
G English *g* hard, as in *game*, *gone*, &c.
H an aspiration as in English, &c.
I as in *marine*, *machine* (or English *ee*); and also short *i* in *him*.
K as in English.
L (*the same*).
M (*the same*).
N (*the same*).
O English long *o*, as in *robe;* and also the *o* in *some*, *among*, *above*, &c., which is equivalent to the English short *u* in *rub*, *tun*, &c.

As, however, we cannot accustom our ears familiarly to distinguish, nor our organs of speech to utter with precision, all these slightly-differing sounds, so we need no distinctive characters to represent them to the eye; but it will be sufficient in practice to have characters for the principal sounds (as we may call them) in each series, just as, in the prismatic series of colors, we content ourselves with a few names to denote one principal shade of each color, without fruitlessly attempting to devise terms of theoretical nicety, to describe the innumerable shades on either side of the principal one from which we set out. If we now recur for a moment to the series above denoted by *A*, we find on one side of it a series which we denote by the letter *O*, and, on the other side, a series which we denote by the letter *E*. In the former we begin with the sound of *o* in *morn*, which might be written with *au* or *aw* (or with *a* alone, if we had been accustomed to write this word with that letter, as we do the word *war*), and then we proceed to the sound which it has in *more*, till we arrive at that which it has in *move;* which point may be considered, practically speaking, as forming the end of one series and the beginning of another, which is represented by the letter *U;* and these two contiguous extremes are sometimes represented by *o* and sometimes by *u;* that is, our *oo*. If we now take the other side of the series, represented as above by *A*, and set out from the sound which that letter has in the word *fate*, we enter upon a series, of which the letter *E* may be called the representative, beginning with its sound in the word *met*, which is the short sound of *a* in *fate;* and this series, proceeding imperceptibly through various gradations, at length vanishes in the simple, unequivocal sound of *ee*, which foreign nations denote by the third vowel, *i*. The following table will perhaps make these remarks more intelligible:

Series of the Letter A.



Now, in writing the Indian languages, it will often be found extremely difficult to decide, in each series of the vowel sounds, to what extent, on each side of the principal or middle point (as I have called it), we shall use the same vowel character, or when we shall have recourse to the letter which is the representative of the next adjacent series. From these considerations in the case of the vowel *A*, though we have no difficulty in using it to denote the sound of *a* in *far*, yet, when we proceed in the series to the full, broad sound which it has in *fall*, we feel a repugnance (arising from old habits in our own language) to denoting that sound by the single vowel, and are rather inclined to express it by *au* or *aw*. If it should be thought that it might be denoted by *o* (as in *for*), it will be obvious that this would only be throwing the same difficulty into another series, and we should then have to decide again, how far the letter *o* shall be employed in that series, on each side of its principal sound of *o* in *more*. Now this broad sound (*aw*), though found in the European languages, is not commonly represented in them by the letter *A;* and, therefore, foreigners who should attempt to read any Indian language, in which the simple *a* was employed to denote the sound *aw*, would inevitably be misled, and pronounce the *a* in *father*. It has, therefore, seemed to me better, in an alphabet designed for general use, to employ *aw* to denote this broad sound, and to reserve the single letter *a* to denote its common foreign sound, as in *father*. I should use *aw*, and not *au*, because the latter has already the established power of a diphthong in the foreign languages, equivalent to our diphthong *ow* in *now*, *how*, &c., but *aw*, being a combination not in common use, would attract the attention of the foreign reader as a new character, and would not lead him into error. Mr. Du Ponceau, after much reflection, prefers using *a* alone for the sound of *aw*, and then denoting the sound of *a* in *father* by the diphthong *ä*. His opinion much diminishes the confidence I have had in my own; but as my plan was founded upon the idea of taking the common European sounds of the vowels as the basis of the alphabet, I have thought it would be too great a departure from it, if I should give to the vowel *a* any other than such common sound.

P as in English, &c.
R (*the same*).
S as in English at the beginning of a word.
T as in English, &c.
U English *oo*, both long and short; French *ou*.
V English *v*, German *w*, Russian *b*, modern Greek *β*.
W as in English; French *ou*.
Y as in the English words *yet*, *you*, &c.
Z as in the English, &c.

Nasals.

A̧ as in *ang* (sounding the *a* itself as in *father*).
Ȩ *long*, as in *eyng* (pronouncing the *ey*, as in *they*); and *short*, as in the word *ginseng*; Portuguese *em* final.
I̧ *long*, as in *eeng*; and *short*, as in *ing*; Portuguese *im* final.
O̧ *long*, as in *owng* (sounding the *ow* as in *own*); French *on*; Portuguese *om* final. This character will also be used for *o* short *nasalized*, which is very nearly the same with *ong* in *among*, as this latter is equivalent to *ung* in *lung*, &c. See Walker's *Dict.*, *Principles*, No. 165.
U̧ as in *oong*; Portuguese *um* final.

To these should be added a character for the nasal *awng* or *ong*, which corresponds to our *o* in *for*, *nor*, &c. And, as I have proposed to denote this vocal sound, when not *nasalized*, by *aw*, so it would be most strictly conformable to my plan, to denote the same vocal sound, when it is *nasalized*, by *a̧w̧* or *aw̧*. But perhaps the letter *a* itself, with the cedilla (*a̧*), may be used without inconvenience for this broad nasal sound; and we may still, in the common vowels, reserve the simple *a* to denote the sound it has in the word *father*, and not the sound of *aw*. For it may be found, that the first nasal sound in this table is not common in the Indian languages; in which case it would be best to use the simple *a̧* for the broad nasal here mentioned.

Diphthongs.

AI English *i* in *pine*.
AU English *ow* in *how*, *now*, &c., and *ou* in *our*.
IU English *u* in *pure*; French *iou*.
YU to be used at the beginning, as *iu* may be in the middle, of words.

Additional Consonants.

DJ, DSH, or DZH, English *j* and *dg*, in *judge*; French *dg*.
DH, ... as in the English words *this*, *that*; the *δ* of the modern Greeks.
DS, DZ; TS, TZ, English *ts* in the proper name *Betsy*; German and Italian *z*; German *c* before the vowels *e* and *i*; Polish *c* before all the vowels; Russian *Tsi*. These four compounds being nearly alike (as Mr. Du Ponceau justly observes to me), the ear of the writer must direct him which to use, as the respective consonants predominate.
GH, ... See *kh*, below.
GZ, or GS, English *x* in *example*, *exact*.
HW, English *wh* in *what*, *when*.
KH, guttural, like the Greek *χ*; Spanish *x*, *g* and *j*; German *ch*; Dutch *gh*. I have given the preference to *kh* for the purpose of expressing this guttural sound; but *gh*, pronounced as the Irish do in their name *Drogheda*, &c., may be better in certain cases where this guttural partakes more of the flat sound, *g*, than of the sharp one, *k*. It may be observed, that *gh* has been already used in some of the books printed for the use of the Indians.
KS, English *x* in *maxim*, *exercise*.
KSH, ——— *xi* in *complexion*; *xu* in *luxury*. The formation of this combination would be obvious; but as the sound is actually often used in the Delaware language, I have thought it best to notice it.
KW, English *qu*.

LY, or LI, . . .	as in the English word *steelyard*; French *l mouillée*; Spanish *ll*; Portuguese *lh*; Italian *gl* before *i*.
NY, or NI, . . .	as in the English proper name *Bunyan*, and the words *onion*, *opinion*, &c.
TH, ...	in the English word *thin*; Greek ϑ.
TS, TZ, }	See *ds*, above.
TSH, ...	English *ch* in *chair*; Spanish *ch* in *much*; Italian *c* before *e* and *i*; German *tsch*; Russian ч.
WT, ...	as in the Delaware language.
ZH, ...	as *s* in *pleasure*; French and Portuguese *j*; Polish z, with a comma over it (ź).

Writing Pens. (See *Pens, Writing*.)

Wry-Neck (*yunx torquilla*); a small European bird, related to and having some of the habits of the woodpeckers; but the tail is soft, and cannot serve in any way as a support; and it never strikes the bark of trees with its bill. It also differs widely in its appearance, the plumage being mottled somewhat in the same manner as that of the whip-poor-will. The name is derived from a habit of twisting its neck in a singular manner.

Wulfilas. (See *Ulfilas*.)

Wurmser, Dagobert Sigismond, count von, Austrian general field-marshal, was born of a rich Alsatian family, in 1724, and, having early entered the Austrian service, was engaged through the whole of the seven years' war; at the close of which he held the rank of major. In the war of the Bavarian succession (see *Bavaria*), he commanded an army in Bohemia, and, in 1779 (Jan. 18), gained some advantages over the Prussians at Habelschwerd. The peace of Teschen (q. v.) soon after put an end to hostilities. On the breaking out of the war against France, Wurmser commanded a division of the Austrian army, and passed the Rhine March 31, 1793. After gaining some unimportant advantages, he was compelled to recross the Rhine, towards the close of the year, and was recalled from his command. In August, 1795, he rejoined the army, and captured Manheim Nov. 22. In the summer of the next year, he took the command of the army of Italy, and forced his way to Mantua, into which he threw himself Sept. 30. Here he was finally obliged to surrender to the French troops, after a siege of nine months. After his return to Vienna, he was appointed to the command in Hungary, but died before he could leave Vienna, of the consequence of his privations and sufferings in Mantua, in the summer of 1797.

Würtemberg, or **Wirtemberg**; a kingdom of the western part of Germany, bounded by Bavaria on the east, and Baden on the west, and bordering on lake Constance on the south. It is of an oblong form, extending from lon. 8° to 10° 30′ E., and from lat. 45° 36′ to 49° 45′ N. It forms part of the old circle of Suabia, and covers an area of 7240 square miles. It is divided into four provinces, the Neckar, the Schwarzwald, the Danube and the Jaxt, with a population, in 1829, of 1,562,033 souls, of whom 1,506,270 were Germans, 2400 Waldenses, and 9100 Jews. The religion of the great majority of the people is Protestant: there are, also, 478,444 Catholics. There is one university at Tübingen, with, in 1830, 887 students; and there is also a considerable number of lyceums, gymnasia and high schools, with 2187 common schools (*Volkschulen*). The chief town and royal residence is Stuttgart, with a population of 31,000: the other principal places are Ulm (12,049), Reutlingen (10,180), Heilbronn, Tübingen, Hall, Esslingen, Ludwigsburg, Rothenburg and Gmünd. The great natural features of this country are two ranges of mountains, one called the Black Forest, or Schwarzwald, extending along the western frontier, the other called the Suabian or Würtemberg Alp, an insulated range of rocky hills, destitute of wood, beginning at Rotweil, and traversing the kingdom in a north-east direction. On these lofty tracts, the climate is cold and bleak; but the rest of the country is agreeably diversified with hills of moderate elevation, and pleasant valleys, which enjoy a mild and pleasant climate. The principal rivers are the Danube and Neckar, also the Enz, Muhr, Kocker, Jaxt and Tauber. Würtemberg, with the exception of the two mountainous ranges, is one of the most fertile and best cultivated parts of Germany. It produces the various kinds of grain; wine, the best qualities known abroad under the name of the Neckar wine; fruits of various kinds. The minerals are iron, silver, copper, coal and porcelain. The Black Forest produces abundance of pine and fir, considerable quantities of which are exported. The revenue, in 1830, amounted to 27,887,145 guilders; the expenditure to 27,868,136 guilders, the public debt to 28,604,350. The standing army, in time of war, is composed of 16,824 men, the peace establishment, of 4906, the contingent to the forces of the German confederation, of 13,955. The king of Würtemberg has the sixth vote in the German diet, and four votes in the plenum. The government is a constitutional monarchy: the constitution was adopted Sept. 25, 1819. The king shares the legislative power, and the right of imposing taxes, with the estates, which consist of two chambers or houses, and possesses the entire executive power. The crown is hereditary in the male line, but, in case of the failure of males, passes to the females. The upper chamber is composed of the princes of the blood, of the heads of the mediatized families, and of members called to sit by the king. The lower chamber, or chamber of deputies, is composed of thirteen deputies, chosen by the nobility, who have the right of judicial jurisdiction, six deputies of the clergy, deputies of seven towns, and deputies of the sixty-three bailiwics of the kingdom. The reigning king, William I, born 1781, ascended the throne in 1816. By his third wife he has one son, Frederic, the crown prince, or heir apparent, born 1823. His predecessor on the throne was Frederic, declared king of Würtemberg in 1805.

Würtemberg, History of. The origin of the kingdom of Würtemberg, more properly Wirtemberg,* is as follows. Lords of Würtemberg are first mentioned toward the end of the eleventh century: down to the middle of the thirteenth century this family seldom appears; but from that time, the Suabian history is full of their conquests and compacts. The counts of Würtemberg were not, like other counts of the empire, originally officers of the emperor. They were the proprietors of extensive domains, and, by way of honor, called *counts*. The emperors infeoffed them at a later period. Besides the revenue which they derived from their estates, they received a considerable income from convents, towns and villages, which they agreed to protect. This branch of revenue was charged with the expenses of the government. Separate from this was the income of the patrimonial estates of the family. Such a separation is seldom found elsewhere, especially at so early a period. Taxes were to be raised only when the revenue was insufficient. This state of things began with count Ulrich, who acquired distinction in the middle of the thirteenth century. Germany was then without a head. The kings and emperors of Germany, from the death of Frederic II (q. v.) to Rodolph of Hapsburg (q. v.), were mere shadows. Ulrich died in 1265. His successor, count Eberhard, doubled the possessions which he had received from his father. He had many feuds with the emperors Rodolph, Adolphus of Nassau, and Albert of Austria. The emperor Henry of Luxemburg put him under the ban of the empire, and he was attacked from all sides, so that he fled to the margrave of Baden. But Henry VII died in Italy, and Eberhard recovered all that he had lost. His son Ulrich purchased new territories, among which was Tübingen. (q. v.) His son Eberhard *der Greiner*, a knight known all over Germany, purchased, during his reign, from 1344 to 1392, about twenty towns in whole or in part, and a number of villages, &c., and maintained what he had acquired in a constant struggle with the free imperial cities of Suabia. His successors continued to increase their possessions almost down to the elevation of the Würtemberg territories into a duchy, profiting by the spendthrift habits of their neighbors, and seizing the wealth of the convents and free cities when they found opportunity. But the chief cause of the gradual rise of this family was the circumstance that its territory remained undivided. The first division took place in 1442; but it lasted only to 1482, and, by the treaty of Münsingen, in the same year, the indivisibility of the territory became a family law. The emperor Maximilian, in 1495, made it a duchy; and Würtemberg became now the name of a country. The dukes soon acquired importance as members of the empire. To Eberhard, the same duke who made the family law just mentioned, the people of Würtemberg owe the first steps towards a constitution founded upon compact. Eberhard had, in consequence of a family quarrel, convoked deputies of the citizens for the settlement of public affairs, in 1482. On this occasion, it was solemnly stipulated that every thing done in future by the rulers of Würtemberg for the advantage of the country, should be done with the coöperation of the prelates, counsellors and deputies. The country nobility was excluded at its own desire. Lutheranism was introduced under Christopher (q. v.), and through him and his successors the "permanent delegations" (standing committees) and the separate treasury acquired completeness and stability. Frederic, at the beginning of the seventeenth century, and Charles, in the middle of the eighteenth, attempted to overturn the constitution, but in vain. It was not till 1806, that the government became an absolute monarchy, after the constitution had lost much of its efficacy and estimation in the last years of the reign of Charles. The thirty years' war, so ruinous to all Germany, was particularly disastrous to Würtemberg. Between 1634 and 1641, the population sunk from about 330,000 men to 48,000. All who were able left the country: great numbers were destroyed in battle or by famine and pestilence: towns and villages lay deserted and in ruins. To the Swedes, under the government of the chancellor Oxenstiern, and to the Swedish ministers at Osnabrück, Würtemberg owes her restoration, which was effected by the peace of Westphalia. (q. v.) But the reign of Louis XIV was also a time of great suffering for this country; Melac and other monsters, burned and devastated it. During the reign of duke Louis, Würtemberg was under the government of a mistress, like France in the time of Louis XIV. From the war of the Spanish succession to the wars of the French revolution, the country was free from foreign enemies. Only once, in the second Silesian war, foreign troops marched through it; and duke Charles took part with Austria against Prussia in the third Silesian war, with the hope of being assisted by that power in suppressing the chamber of deputies. But his attempt at absolute power was defeated by the aulic council of the empire, under the guarantee of Prussia, Hanover and Denmark, and the government became still more limited. The duke at once changed the character of his administration, diminished the expense of his court, and, during the last half of his reign, did much good. He patronised arts and sciences, though in a somewhat military manner. The Charles academy (see *Schiller*, and *Dannecker*) was founded by him. The population rose to 600,000. The religion of the country had suffered by the circumstance that, from 1733 to 1797, the princes were Catholic. Under the reign of duke Charles Alexander, a Jew, named Süss, ruined the finances, of which he was minister. He was hanged by Charles's successor. Through a Prussian princess, the mother of Frederic Eugene, Protestantism became again the religion of the rulers. During the government of Frederic, the French republic took possession of the Würtemberg territories on the left bank of the Rhine, and repeatedly occupied the duchy. His son, subsequently king Frederic I, was indemnified by an additional territory, containing 12,000 inhabitants. He himself was made elector. (q. v.) In 1805, he took part with France in the war with Austria; in return for which he was made king, with sovereign power, and received an addition to his territory, which gave him 200,000 new subjects. As soon as the empire was dissolved, the new king became a member of the confederation of the Rhine (see the article), and, as such, took part in all the wars of France, except that with Spain. Subsequently to the last war between France and Austria (1809), the population of the kingdom was increased to 1,350,000. After the downfall of the French empire, the king secured all his acquisitions by joining the allies. Since 1815, Würtemberg, though a small kingdom, has formed one of the larger states of the Germanic confederacy. Frederic I was a tyrant, and that to a degree which is rare at the present time; yet, like many other tyrants, he was a man of talent, and judiciously promoted the good of his subjects, where it was in accordance with his own objects. He died in 1816, and was succeeded by his son William I. When Frederic I assumed the royal title, in 1806, he declared himself absolute sovereign. The peace of Presburg (q. v.) made him such in fact. The people of Würtemberg, in the confusion of the new order of things, took the oath of unconditional obedience, instead of the former constitutional oath. Only two or three persons made some opposition. But when the king went, in 1814, to the congress of Vienna, some voices demanded the old constitution. At this congress, the king, supported by Bavaria, opposed Prussia and Hanover, which expressed themselves in favor of the establishment of representative estates throughout Germany. But he soon declared that he intended to give a new constitution, and offered one in 1815; but it was rejected. The representatives of the people demanded the old constitution, and laid particular stress on the compact which it recognised between the people and the monarch. After the subject had been long under discussion, Frederic was on the point of cutting the whole matter short; but death prevented him. A constitution was at last agreed to by king William, September 26, 1819. It is founded on compact. (See *Constitution.*) The outlines are given in the preceding paragraph.

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* Würtemberg was originally the name of a castle near Stuttgart. Hence it became the name of a family, then of a duchy, and at last of a kingdom.

Würzburg, Grand-Duchy of, has been, since 1814, a part of the kingdom of Bavaria. The former bishopric of Würzburg was founded as early as 741, when Burchard was appointed the first bishop, by St. Boniface, and the Frankish kings endowed the church with some lands which were subsequently much increased by grants from the emperors, and other acquisitions made by the bishops, until the principality of Würzburg was formed. A duke of Saxony, Sigismond, having been elected bishop of Würzburg in 1440, his successors bore the title of dukes of Franconia. The archbishop of Mayence was the spiritual superior of the bishop of Würzburg, even after the grant of the archiepiscopal dignity, in 1752, to the latter, whose title was prince of the holy Roman empire, bishop of Würzburg, and duke of Franconia. The bishopric comprised 1840 square miles, with 250,000 inhabitants; and the annual income of the bishop amounted to 500,000 guilders. By the articles of the peace of Luneville (q. v.), the bishopric of Würzburg, with the other "immediate" ecclesiastical possessions in Germany, were given to Bavaria as an indemnity for her lost provinces on the Rhine, with the exception of a few districts, amounting to 318 square miles, and containing 37,000 inhabitants, given to other princes. The last prince-bishop was compensated for the loss of Würzburg by an annual pension of 60,000 guilders, besides receiving 30,000 guilders as coadjutor of the prince-bishop of Bamberg. By the peace of Presburg (q. v.), concluded December 26, 1805, Würzburg was given to the former grand-duke of Tuscany, Ferdinand (q. v.), who ceded the duchy of Salzburg, which he had received in 1803, with the dignity of elector, to Austria; and the electoral title passed over to Würzburg. Bavaria was compensated for the loss. September 30, 1806, the new elector joined the confederation of the Rhine (see that article), and assumed the title of grand-duke of Würzburg. The events of 1817, and the arrangement of the congress of Vienna, made new changes. The grand-duke received back his hereditary state of Tuscany, and Würzburg was restored to Bavaria. The grand-duchy of Würzburg forming, at present, a part of the Bavarian circle of the Lower Maine, contains 1900 square miles, with 290,000 inhabitants, mostly Catholics. The country is level, but surrounded on three sides by chains of mountains. The Maine passes through a great part of it. The soil is very fertile, and produces much grain: the vine is particularly cultivated on the hills of the valley of the Maine. The best sorts of wine made are the Stein wine and the Leisten wine, which are produced only in the neighborhood of the capital, and bring considerable sums into the country, which is not rich in minerals, and has few manufactures. Würzburg, the fortified capital of the grand-duchy, with 1970 houses, and 21,800 inhabitants (lon. 9° 55′ E., lat. 49° 46′ N.), has a fine situation, occupying both banks of the Maine, over which there is a bridge 540 feet long. Among the public buildings is the palace of the former prince-bishops, built in 1720, with a beautiful garden; at present generally occupied by the queen dowager of Bavaria. The extensive and rich Julius hospital, conducted in an excellent manner, with which is connected a lying-in hospital, a botanical garden, an anatomical theatre, and various collections, is well known. Among the churches are the large cathedral, said to have been founded by bishop Burchard, in the eighth century, but entirely rebuilt in 1042; the elegant new minster; the university church, with an observatory on the tower; &c. Würzburg contains many other fine buildings, public and private. It has a gymnasium, a central school of industry, a school for midwives, a swimming school, an institution for the blind, several seminaries, the orthopædic (q. v.) Caroline institute, a veterinary school, and a university, of which we shall speak below. It has also manufactures of woollen cloths, looking-glasses, leather, colors, glauber salt, tobacco, &c. The navigation on the Maine is considerable. Without the city is the citadel of Marienberg, on a hill 400 feet high. From a part of this height, called the *Leiste* (List), comes the famous Leisten wine, and from the Steinberg (stone-mountain), also near the city, comes the Stein wine. The whole space occupied by the vineyards around the city is 7000 acres. Not far from here, in the former convent of the Cistercians, is the manufactory of power printing-presses, by Messrs. König and Bauer, who invented the steam press in London—an old convent has been converted into a manufactory of power presses!—The university of Würzburg was founded by the fifty-fifth bishop, in the year 1403, on the model of that of Bologna; but it soon sunk into decay. In 1582, it was re-established by a bishop Julius, who is justly considered the true founder. After him the university is called *Julia*. Medicine has always flourished in this institution, and mainly contributed to its reputation, whilst theology and philosophy were exclusively in the hands of Jesuits, until the abolition of the order. Many distinguished scholars have been professors here; and, when Würzburg was ceded to Bavaria, the government of that country invited many eminent men to fill its chairs. It also established a Protestant theological faculty. But the changes which we have mentioned at the beginning of this article, were highly injurious to the institution, and, in 1809, it was reorganized according to the views of the Catholic clergy, who had remained far behind the spirit of the time. But when Würzburg was reunited with Bavaria, a new life was given to this institution. In 1818, Bavaria received a constitution; and the university has distinguished itself by the cultivation of constitutional law, which, however, has found no favor with government. Since 1814, the number of students has been generally from 650 to 700; sometimes more. The foreign students, about 150 in number, are mostly connected with the medical faculty. In 1821, a professorship of French law was established for the Bavarian subjects of the circle of the Rhine. There is a faculty for teaching political economy. The library contains above 100,000 volumes. Gustavus Adolphus carried the whole library which he found there to Sweden. We should also mention the musical institute, in which instruction is given gratis in singing and playing. The school-masters of Bavaria are here instructed in music. The Bavarian government seems to patronise the new university of Munich somewhat at the expense of Würzburg.

Wyat, sir Thomas, a distinguished courtier of the age of Henry VIII, son of sir Henry Wyat, master of the jewel office, was born in 1503, at Allington castle, in the county of Kent, the seat of the family. He commenced his academical education at Cambridge, which he completed at Oxford, and, on quitting the university, went on his travels to the continent. On his return to England, he appeared at court, where the reputation he had already acquired as a wit and a poet, introduced him to the notice of Henry, who knighted him, and retained him about his person. In the affair respecting the king's divorce from queen Catharine, sir Thomas narrowly escaped losing the royal favor, by an indiscreet expression of his opinions on the subject; but, finding how the business must terminate, he had sufficient pliability of disposition to veer about in time, and, by a facetious remark on the possibility of "a man's repenting his sins without the leave of the court of Rome," so met the king's humor, that his influence increased rather than suffered any diminution. He was subsequently employed on several diplomatic missions to different powers, and died in 1541. His poetical works, which consist principally of love elegies, odes, &c., and a metrical translation of the Psalms, were published in conjunction with those of his contemporary and personal friend, the earl of Surrey. They evince more elegance of thought than imagination, while his mode of expression is far more artificial and labored than that of his friend. He must not be confounded with a sir Thomas Wyat who headed an insurrection in the reign of queen Mary.

Wycherley, William, one of the wits and dramatists of the reign of Charles II, was the eldest son of a gentleman of Cleve, in Shropshire, where he was born about 1640. After receiving a school education, he was sent to France, where he embraced the Catholic religion. He returned to England a short time before the restoration, and, resuming Protestantism, was entered a gentleman commoner of Queen's college, Oxford, which he left without a degree, and took chambers in the Middle Temple. He paid, however, little attention to the law, but became a man of fashion on the town, and made himself known, in 1672, as the author of Love in a Wood, or St. James's Park, a comedy. This piece brought him into much notice: he became a favorite of the meretricious duchess of Cleveland, and was much regarded by Villiers, the witty and profligate duke of Buckingham, who made him captain-lieutenant in his own company, and one of his equerries, or masters of the horse. He was likewise in great favor with the king himself; but he lost the king's countenance by a clandestine marriage with the countess of Drogheda, a young, rich and beautiful widow, whose jealousy embittered their union. At her death, she settled her fortune upon him; but, his title being disputed, the costs of law and other encumbrances produced embarrassment, which ended in arrest. He remained in confinement seven years, until released by James II, who was so pleased with his comedy of the Plain Dealer, that he ordered his debts to be paid, and added a pension of £200 per annum. Wycherley's modesty rendering him unwilling to disclose the whole that he owed, he still remained involved until the death of his father, whose estate descended to him, but with considerable limitation, which prevented him raising money on it. He, however, discovered an expedient, by marrying, at the age of seventy-five, a young gentlewoman with a fortune of £1500, whom he recompensed with a good jointure. He died about fifteen days after the celebration of the nuptials, in 1715, enjoining his wife not to take an old man for her second husband. Besides the plays already mentioned, he wrote the comedies of the Gentleman Dancing-Master, and Country Wife, and a volume of poems, printed in 1660. The correspondence between him and Pope, then a youth, is printed in the collection of that poet's letters. He is now only remembered as a dramatist, and that principally by his Plain Dealer, and Country Wife, the latter of which is better known by the title of the Country Girl—a name given to a modern adaptation, which gets rid of much objectionable coarseness. His Plain Dealer may be deemed an English counterpart of the Misanthrope of Molière, displaying more license, with considerable wit, humor, and comic force of character. The Posthumous Works of Wycherley, in Prose and Verse, were published by Theobald, in 1728.

Wycliffe. (See *Wickliff.*)

Wykeham, William of, bishop of Winchester, and lord high chancellor of England, a distinguished prelate of the fourteenth century, was born at Wykeham, a village in Hampshire, in 1324, of respectable parents, but so poor that, but for the liberality of the lord of the manor of Wykeham, a liberal education would have been beyond his reach. On the completion of his studies, he became private secretary to his patron, and was by him recommended to the notice of Edward III. In 1356, Edward appointed him to superintend the erection of Windsor castle, as surveyor of the works. (See *Windsor.*) On one of the towers he put an inscription, This made Wykeham. His enemies exclaimed against his presumption. Wykeham, however, assured the king that he had intended to intimate, that his diligence in forwarding the building had raised him, through the favor of his prince, to his present rank. Wykeham, having taken holy orders, rose rapidly to the highest dignities in church and state. In 1366, he was elevated to the rich see of Winchester, and, in 1367, reached the highest point of his career, the chancellorship of England. This office he discharged with great ability nearly four years, distinguishing himself by his orderly management of his diocese, and by his disinterestedness in dedicating a large portion of his temperalities to the improvement of his cathedral, and the foundation of a grammar school at Winchester, which still exists as a monument of his munificence. (See *Winchester.*) In 1371, a party at court, opposed to the increasing wealth and influence of the clergy, and headed by John of Gaunt, duke of Lancaster, succeeded in persuading the parliament that his power was too great for a subject; and he was compelled to resign the seals. For the remainder of this reign, he continued apart from the court, consoled for his disgrace by the attachment of the people. On the accession of Richard, he was restored to his dignities and emoluments. In 1386, he completed his noble foundation of New college, Oxford. In the chapel belonging to this establishment, his crosier, or pastoral staff, is still preserved, supposed to be the only one in England. Scarcely was this college finished, when he commenced erecting another at Winchester, which he also lived to see finished. In 1391, he resigned the chancellorship. His death took place in 1404. (See his *Life*, by Lowth; and Milner's *History of Winchester.*)

Wyndham, sir William, an eminent English senator and statesman, was born at Orchard-Wyndham, in Somersetshire, in 1687. His father, of the same name, had been created a baronet by Charles II. He was educated at Eton, whence he was removed to Christ-church, Oxford. On quitting the university, he made the tour of the continent, and, on his return, was chosen knight of the shire for the county of Somerset. He soon became conspicuous as one of the ablest members of the house of commons; and, on the change of ministry which produced the treaty of

Utrecht, was appointed master of the buckhounds, then secretary at war, and, in 1713, chancellor of the exchequer. On the breach between the earl of Oxford and viscount Bolingbroke, he adhered to the interests of the latter. Upon the death of queen Anne, he was displaced; and, in the ensuing parliament, took a leading part in opposition, and signalized himself by advocating the treaty of Utrecht, and in his defence of the duke of Ormond, and earls of Oxford and Strafford, when impeached by the house of commons. On the breaking out of the rebellion in Scotland, under the earl of Mar, in August, 1715, he was arrested at his seat in Somersetshire, on suspicion of being concerned in that event; but he made his escape from the messenger. On a proclamation being issued for his apprehension, he soon after surrendered himself, and was committed to the Tower, but was never brought to trial. On regaining his liberty, he continued his opposition, but on more broad, and less Jacobitical grounds than heretofore, and remained in strenuous contest with ministers until his death, in 1740. His son, by the daughter of the duke of Somerset, became, on the death of the duke, earl of Egremont, the title having been granted to that nobleman, with remainder to his grandson. The latter succeeded the first earl of Chatham as secretary of state, and died in 1763.

Wyte, or **Wite**, in the ancient English customs; a pecuniary penalty or mulct. The Saxons had two kinds of punishments—*were* and *wyte;* the first for the more grievous offences: the wyte was for the less heinous ones. It was not fixed to any certain sum, but left at liberty to be varied according to the nature of the case.

Wythe, George, a signer of the Declaration of Independence, was born, in 1726, in Elizabeth county, Virginia. His education was principally directed by his mother. The death of both his parents before he became of age, and the uncontrolled possession of a large fortune, led him, for some time, into a course of amusement and dissipation. At the age of thirty, however, his conduct underwent an entire change. He applied himself vigorously to the study of the law; and, soon after his admission to the bar, his learning, industry, and eloquence, made him eminent. For several years previous to the revolution, he was conspicuous in the house of burgesses, and, in the commencement of the opposition to England, evinced an ardent attachment to liberty. In 1764, he drew up a remonstrance to the house of commons, in a tone of independence too decided for that period, and which was greatly modified by the assembly before assenting to it. In 1775, he was appointed a delegate to the continental congress, in Philadelphia. In the following year, he was appointed, in connexion with Mr. Jefferson and others, to revise the laws of Virginia—a duty which was performed with great ability. In 1777, he was elected speaker of the house of delegates, and, during the same year, was appointed judge of the high court of chancery of the state. On the new organization of the court of equity, in a subsequent year, he was appointed sole chancellor—a station which he filled for more than twenty years. In 1787, he was a member of the convention which formed the federal constitution, and, during the debates, acted, for the most part, as chairman. He was a strenuous advocate of the instrument adopted. He subsequently presided twice successively in the college of electors, in Virginia. His death occurred on the 8th of June, 1806, in the eighty-first year of his age. It was supposed that he was poisoned; but the person suspected was acquitted by a jury. In learning, industry and judgment, chancellor Wythe had few superiors. His integrity was never stained even by a suspicion; and, from the moment of his abandonment of the follies of his youth, his reputation was unspotted. The kindness and benevolence of his heart were commensurate with the strength and attainments of his mind.

Wyttenbach, Daniel; a learned philologist of the Dutch school, who was a native of Berne, and was born in 1746. His father having been appointed a professor at Marburg, he was admitted a student of that university. He afterwards went to Göttingen to study under Heyne, with whose assistance he published, in 1769, *Epistola Critica ad Ruhnkenium super nonnullis Locis Juliani cui accesserunt Animadversiones in Eunapium et Aristænetum.* This learned work procured him the friendship of Ruhnken (q. v.), whom he visited at Leyden, and who obtained for him the professorship of philosophy and literature in the college of the Remonstrants at Amsterdam. He subsequently devoted his talents to the illustration of the works of Plutarch, and, in 1772, printed, at Leyden, the treatise of that writer, *De Sera Numinis vindicta*, with a learned commentary. In 1779, the magistrates of Amsterdam created a philosophical professorship at an institution called the Illustrious Athenæum, to which Wyttenbach was presented; and, in 1799, he was appointed professor of rhetoric at Leyden, where he died in 1819. The result of his researches relative to Plutarch, appeared in his excellent critical edition of the Moral Works of Plutarch, published at Oxford (1795—1810, 7 vols. 4to, and 12 vols. 8vo). Professor Wyttenbach was the author of *Præcepta Philosophiæ logicæ* (Amst. 1781, 8vo.); *Selecta Principum Græciæ Historicorum*, with notes (1793 and 1807); *Vita Ruhnkenii* (1800, 8vo.); and some other works. His Opuscula appeared at Leyden in 1821; and there is a Life of him by Mahne (Ghent, 1823).

X.

X; the twenty-fourth letter of the English alphabet, taken from the Latin, into which it was adopted from the Greek. The pronunciation of it, in the middle and at the end of words, is like that of *cs* or *ks*. At the beginning of a word, it has precisely the sound of *z*; and the English alphabet might therefore dispense with this character without any inconvenience, except where etymology requires it. The Italians never use it, on account of its guttural character, which is hostile to the spirit of their language. When it occurs between two vowels, they supply its place by *ss*, as in *Alessandro:* when it immediately precedes *c*, they substitute another c for it, as in *eccellente*. In Spanish, the letter *x* had formerly two very different sounds, one like that of *s* or *cs*, derived from the Latin, and another strongly guttural, derived from the Arabian. At present, however, it is pronounced like *s* when it is followed by a consonant, and like *ks* when it comes between two vowels. The guttural sound formerly represented by *x*, is now represented by *j* before *a*, *o* and *u*, and by *g* before *e* and *i;* so that it is no longer necessary to put a circumflex over the vowel following the *x*, when the latter is to be pronounced like *ks*. The Germans, in words belonging to their language, have generally resolved the *x* into *ks*, *gs*, or *chs;* and only when the derivation of the word containing the *x* is uncertain, so that it cannot be determined into what letters the *x* ought to be resolved, this character is retained. In French, *x* has also all the various pronunciations of *s*, *cs*, *gz* and *z*, according to circumstances. In many cases, it is not pronounced at all, and only indicates the plural number to the eye. The Latins call *x* a semivowel, and one of the letters termed *double*. The Greek characters for this letter were Ξ and ξ; and the character which we now use to designate X, was their guttural. From the circumstance that this guttural is the initial letter in ΧΡΙΣΤΟΣ (*Christ*), the letter *x* of the Latin alphabet—the same in figure, but different in sound—acquired much importance at an early period, particularly in the monogram ☧, composed of the two first Greek letters of the word Χριστος. Constantine the Great used it both on his coins and military ensigns. Several other emperors imitated his example; and this monogram came into common use with the Christians, as on lamps, and other utensils, on tombs, &c. Constantine, however, did not invent this monogram, but merely gave it the Christian meaning. It is found on ancient medals and coins; and its precise meaning there is not ascertained. As persons who are unable to write are accustomed to put a cross instead of their signature, or, at least, to touch the pen of him who makes the cross for them, such crosses, when the signatures are printed, are represented by an ⋈, long strings of which may be found at the end of treaties concluded between the U. States and the Indian tribes. X, with the Romans, denoted ten, being composed of two V s, thus $\overset{V}{\Lambda}$. (See *V*.) In this position, ⋈, it signifies a thousand, and with a dash over it ($\overline{X}$), ten thousand. X enters largely into the Roman system of notation. When it stands before a letter designating a larger number than itself, it must be subtracted when after, it must be added: thus XC is equal to ninety; CX to a hundred and ten. *X*, *y*, *z*, are commonly used in mathematics to denote variable quantities, whilst the letters at the beginning of the alphabet are used for the constant quantities. St. Andrew's cross, so called, has the shape of an X, the legend of this saint representing him as having been crucified on such a cross. (See *Cross*.)

Xagua Bay; a large bay on the south coast of Cuba; lon. 81° 20′ W.; lat. 22° 10′ N. This is one of the best ports in the West Indies, and is fifteen miles in circumference, surrounded with mountains, which break the force of the winds.

Xalapa; a town of the Mexican republic, in the state of Vera Cruz, 52 miles north-west of Vera Cruz; lon. 96° 55′ W.; lat. 19° 30′ N.; population, 13,000; a bishop's see. The sky at Xalapa, during the summer, is beautiful and serene, but, from December to February, has a melancholy aspect. The sun and stars are frequently invisible for two or three weeks together. The wealthy merchants of Vera Cruz have country houses at this town, where they enjoy a cool and agreeable retreat, while the coast is almost uninhabitable, from the mosquitoes, the heat, and the yellow fever. The elevation of this town above the sea is 4264 feet. This town gives name to the purgative root called *jalap*, or *Xalap*. (See *Jalap*.)

Xalisco. (See *Guadalaxara*.)

Xanten (*Santen*), a town in the Prussian province of Cleves-Berg, in the government of Düsseldorf, not far from Rheims, with 2650 inhabitants, has some manufactures, and is remarkable on account of the Roman antiquities which are found in its neighborhood. It is supposed that *Ulpia Castra* stood here, and *Vetera Castra* in the neighborhood. The foundations of an amphitheatre are yet visible. Some also think that the traces of the *prætorium* of Quintus Varus are to be seen on the Vorstenberg, and, in the neighborhood of the old castle, those of the *Colonia Trajana*.

Xanthippe; the scolding wife of Socrates, whose name, like so many others, has come down to posterity only by being associated with that of an illustrious character. According to what we are told of her, it required the patience of a sage like Socrates to endure her humors. When Alcibiades asked Socrates how he could live with such a woman, he answered, "Because she serves to exercise my patience, and makes me able to bear all the injustice of others towards me." Xenophon makes Socrates, in the well-known philosophical banquet, defend his wife against the uncivil attacks of Antisthenes. On one occasion, when Alcibiades sent an excellent cake to his philosophical master, she snatched it out of the basket in which it had been brought, and trod upon it. "Thou wilt now not be able to eat of it," was all the remark which Socrates made. Xanthippe, however, did justice to the incomparable character of her husband: she publicly acknowledged that she had always seen him calm, even in the most trying circumstances. This trait might lead us to suspect that the character of Xanthippe was intentionally thrown too much into the shade, in order to make the contrast with that of Socrates the greater. However this may be, her name has become synonymous with that of a scold, who imbitters the life of her husband.

Xanthus; see *Scamander*; also a town of Lycia, on the river of the same name, at the distance of about fifteen miles from the sea-shore. The inhabitants are celebrated for their love of liberty and national independence. Brutus laid siege to their city; and, when they could no longer defend themselves, they set fire to their houses, and destroyed themselves. The conqueror wished to spare them; but, though he offered rewards to his soldiers, if they brought any of the Xanthians alive into his presence, only 150 were saved.

Xantippus; a general of the Lacedæmonians, of an unpromising exterior, but distinguished for his talents. His countrymen sent him with a small army, in the first Punic war, to assist the Carthaginians against the Romans. The Roman consul, Regulus, had beaten the Carthaginian fleet, though much superior to his own, had effected a landing in Africa, defeated the armies of Carthage, and advanced as far as the city. The hard conditions of peace prescribed by him exasperated the Carthaginians. They gave the chief command of their forces to Xantippus. He manœuvred so as to bring the Romans into a disadvantageous position, overcame them, and even took their general, Regulus, prisoner. The Carthaginians thus again obtained the superiority over the Romans. But, much as they owed to Xantippus, they entertained a paltry jealousy that he would gain too much influence. They therefore sent him back to Lacedæmon, and are said to have given his attendants secret orders to kill him on the way: according to some accounts, they gave him a leaky vessel, in which he perished. This charge, however, is by no means proved; and some Greek writers say that he arrived safely in his native country.—There was also an Athenian general of this name, who, with Leotychides, defeated the Persian fleet at Mycale. A statue was erected to his honor in the citadel of Athens. He made some conquests in Thrace, and increased the power of Athens. He was father to the celebrated Pericles by Agariste, the niece of Clisthenes, who expelled the Pisistratidæ from Athens.

Xavier, St. Francis, a celebrated Spanish missionary, surnamed the *apostle of the Indies*, and one of the first disciples of Ignatius Loyola (q. v.), was born April 7, 1506, in the castle of Xavier, at the foot of the Pyrenees. His father was a gentleman of Navarre. He was the youngest of many children, almost all of whom entered the army. He himself, however, early manifested a disposition for study. He pursued his studies at the college of St. Barbe, in Paris, and taught philosophy in the college De Beauvais, in the same city, at the time when Ignatius Loyola entered this college to resume his studies. Loyola was already occupied with his plan of establishing a society for the conversion of infidels, and endeavored to induce Xavier to take part in it. He at first declined; but, after Le Fèvre, or Favre, had associated himself with Loyola, he yielded. Laynez (q. v.), Salmeron, Nicholas Alphonso, surnamed Bobadilla, and Rodriguez, a Portuguese, followed. All six, together with Loyola, on the day of Assumption, in the year 1534, took the vows of poverty and chastity, to which they added that of making a pilgrimage to the holy sepulchre, and of devoting themselves to the conversion of infidels. In case of failing in this attempt, they were to do such service to the church as the pope should direct. Towards the end of 1537, they met at Venice, according to agreement; and, at this time, their number had been increased by the accession of three more persons. Soon after, Xavier was ordained priest, and, when John III, king of Portugal, desirous of propagating the Christian faith in his Indian possessions, requested of Ignatius Loyola a suitable missionary, Xavier determined to undertake the office. April 8, 1541, he embarked at Lisbon, and, in 1542, arrived at Goa. (q. v.) According to the custom which he always followed, he took lodgings in the hospital, where he spent his leisure time in attending on the sick. He preached, and converted to Christianity many heathens, Jews and Mohammedans there, and on the coast of Comorin, at Malacca, Travancore, Macassar, in the Molucca islands, Malacca, Ceylon, Cochin, and, in 1548, returned to Goa, where a college of Jesuits had been established. Thence he went to Japan; but, not having been able to learn the language of the country, he met with little success. He ascribed this, in part, however, to the simplicity of his appearance as a humble pilgrim, and resolved to adopt a different fashion. He presented himself to the king of Japan in rich attire, furnished with letters from the viceroy of the Indies and the bishop of Goa, and with rich presents. He now succeeded perfectly. The king not only gave him permission to preach, but also issued an edict which permitted every one to embrace the new faith. He converted, according to his statement, above three thousand souls, who, twenty-five years later, were found faithful to their religion, though entirely detached from the rest of Christendom. At a later period, other missionaries obtained still greater success. Xavier resolved to introduce Christianity into China. He embarked with a body of attendants, and went to Malacca; but don Alvarez, governor of this island, refused to let the expedition proceed. Xavier, however, was not to be stopped. He departed alone, in a Portuguese vessel, for the island of Sancian, opposite to Canton, twenty-five leagues from the continent; but, after having made all the preparations for his perilous enterprise, he fell sick, and died, after a long and painful illness, Dec. 2, 1552, having spent ten years and a half in his laborious missions. It is said that he was buried on the seashore, and lime put into the grave to consume the body, which, however, being afterwards disinterred, was found entirely fresh; and, according to the poetical conception of the Catholics, which appears in so many legends of saints, a sweet odor exhaled from the whole body. A short time after, his remains were deposited in St. Paul's church at Goa. Many miracles having been ascribed to Xavier, he was beatified by Paul V, in 1619, and canonized by Gregory XV, in 1622. His extant works are Five Books of Epistles (Paris, 1631, 8vo.); a Catechism; *Opuscula*. Bartoli, a Jesuit, wrote, in Italian, the life of St. Xavier, which was translated into Latin by Jannin, in 1709. Xuarès also published *Vida iconologica del Apostol de las Indias, S. Francisco Xavier* (Rome, 1798).

Xebec; a small, three-masted vessel, navigated in the Mediterranean sea, and distinguished from other European vessels by the great projection of the prow and stern beyond the cut-water and stern-post. The sails are, in general, similar to those of the polacre; but the hull is different.

Being generally equipped as a corsair, the xebec is constructed with a narrow floor, for the sake of speed, and of a great breadth, so as to be able to carry a considerable force of sail without danger of overturning. As these vessels are usually very low built, their decks are made very convex, in order to carry off the water more readily. But, as this convexity would render it difficult to walk thereon at sea, particularly when the vessel rocks by the agitation of the waves, there is a platform of grating extending along the deck from the sides of the vessel towards the middle, whereon the crew may walk dry-footed, while the water is conveyed through the grating to the scuppers. The xebecs which the Algerines used, carried from 300 to 450 men, two thirds of whom were commonly soldiers. They had from sixteen to twenty-four cannon.

Xenia (from the Greek word Ξενιον); presents which were given guests among the Greeks and Romans. The Roman epigrammatist Martial (q. v.) inscribed the thirteenth book of his epigrams *xenia*. They are a number of distichs dedicated to his friends and patrons, and each contains praise or blame under the head of some subject connected with the table. Schiller's *Musenalmanach* for the year 1797 (Tübingen) contained more than four hundred distichs bearing the same name, and having reference principally to the then existing state of literature in Germany. They are ascribed to Schiller and Göthe.

Xenocrates; an ancient philosopher, born in Chalcedon, and educated in the school of Plato, whose friendship he gained. Though of a dull and sluggish disposition, he supplied the defects of nature by unwearied attention and industry. Plato esteemed him much; but his want of polished manners often called forth his teacher's advice to sacrifice to the Graces. He travelled with Plato to Sicily, and after his death went with his fellow scholar Aristotle to Asia Minor, but soon returned. He succeeded Speusippus in the school of Plato, about 339 years B. C. He was remarkable as a disciplinarian, and required that his pupils should be acquainted with mathematics before they came under his care. He even rejected some who had not that qualification, saying that they had not yet found the key of philosophy. He recommended himself to his pupils not only by precepts, but more powerfully by example. Alexander sent some of his friends with fifty talents for the philosopher. Not to offend the monarch, he accepted a small sum, about the two hundredth part of one talent. The courtesan Lais is said to have tried every art in vain to triumph over the virtue of Xenocrates. His integrity was so well known that, when he appeared in the court as a witness, the judges dispensed with his oath. He died in his eighty-second or eighty-fourth year, after he had presided in the academy for above twenty-five years. It is said that he fell, in the night, with his head into a basin of water, and that he was suffocated. He had written above sixty treatises on different subjects, all now lost.—He is to be distinguished from another Xenocrates, surnamed the *Physician*, who lived in the time of Tiberius or Nero, and of whose writings only one work, on the use of aquatic animals as food, exists. It gives a pretty complete idea of the knowledge then existing of the natural history of fishes and shell-fish.

Xenophanes; a Greek philosopher, celebrated as the founder of the Eleatic school. He was a contemporary of Pythagoras and Anaximander, and is said to have attained to the age of a hundred years. Having been banished from his native city, Colophon, he went to Sicily, and thence to Græcia Magna. He settled, about 536 B. C., at Elea; and hence his system, and the school which he founded, derive their name. He did not remain satisfied with the opinions of his predecessors in philosophy, but made new inquiries into the nature of things. He attacked, in his *silli*, the mythological fables of the gods given by Homer and Hesiod, and inclined to an ideal pantheism. His chief doctrines are these: All Being is one, unchangeable, and perfect: this Being is called God. He is not to be represented under any human form; but all forms proceed from him, and he is able to do every thing. The apparent variety of things is not real. He is said to have maintained that every thing originated from earth and water, and to have considered the moon an inhabited body. He denied the possibility of predicting future events, and asserted that there is much more good than evil in the world. In general, he complained of the uncertainty of human knowledge. Of his poems, in which he treated of philosophical and other subjects, we have only fragments contained in the works of Athenæus, Plutarch, and others. The fragments of his didactic poem Περι Φυσεως have been collected in the *Poesis philosophica* of

Stephanus; subsequently, and more completely, by Fülleborn, and recently by Brandis, German philologists.

Xenophon; a celebrated historian and general, was born at Athens, about 450 B. C. He lived during a period in which the greatest political and intellectual excitement existed at Athens, and in which the most distinguished men, of whom he was one, appeared on the stage. Xenophon was a favorite disciple of the immortal teacher of wisdom, Socrates; and from his writings, especially his Apology, and the *Memorabilia* of Socrates, we learn the true spirit of the Socratic philosophy. Xenophon was less a speculative than a practical philosopher. He dedicated himself to that state in which he was born, and fought, together with his teacher, in the Peloponnesian war. When the Persian prince, Cyrus the Younger (so called in contradistinction to the founder of the monarchy), contended with his elder brother Artaxerxes Mnemon for the throne, the Lacedæmonians sent him auxiliaries, among whom Xenophon served as a volunteer. He became a favorite of Cyrus, who was defeated and lost his life in the plains of Babylon. The principal officers of the auxiliary army having been likewise killed in battle, or taken prisoners by artifice, and then put to death, Xenophon was selected to command the Greek forces, 10,000 men strong. They were in a most critical situation, in the midst of a hostile country, above two thousand miles from home, without cavalry, surrounded by enemies and innumerable difficulties; but Xenophon was able to inspire them with confidence, to repress insubordination, and to lead them home to Greece. They marched 1155 parasangs, or 34,650 stadia, in 215 days. This retreat is famous in the history of war. It has been compared to various retreats in modern times; for example, that of Moreau, in the south of Germany; but the circumstances are too different to admit of any proper parallel being drawn. Xenophon himself has described this retreat, and, at the same time, the whole expedition of the younger Cyrus, in his *Anabasis*, which has been geographically illustrated, particularly by James Rennell. That Xenophon is actually the author of this work has been proved by C. W. Krüger (author of the *Vita Xenophontis*), in his work *De Authentia et Integritate Anabaseos Xenophonteæ* (Halle, 1824). The expedition might have been forgotten, or, at least, very imperfectly known, had not the Grecian general been so excellent a writer. Xenophon afterwards accompanied the Spartan king Agesilaus to Asia, on his expedition against the Persians. He enjoyed his confidence; he fought under his standard, and conquered with him in the Asiatic provinces, as well as at the battle of Coronæa. His fame, however, did not escape the aspersions of jealousy: he was publicly banished from Athens for accompanying Cyrus against his brother; and, being now without a home, he retired to Scillus, a small town of the Lacedæmonians, in the neighborhood of Olympia. In this solitary retreat, he dedicated his time to literary pursuits; and, as he had acquired riches in his Asiatic expeditions, he began to adorn the country which surrounded Scillus. He built a magnificent temple to Diana, in imitation of that of Ephesus, and spent part of his time in rural employments, or in hunting in the woods and mountains. His peaceful occupations, however, were soon disturbed by a war which arose between the Lacedæmonians and Elis. The sanctity of Diana's temple, and the venerable age of the philosopher, were disregarded; and Xenophon, driven by the Eleans from his favorite spot, retired to the city of Corinth. In this place he died, in the eighty-seventh year of his age. Besides the works already mentioned, Xenophon wrote the Banquet of the Philosophers, a counterpart of a composition of Plato, and several smaller works, relating to agriculture, politics, and the science of war; also a history of the Greeks, in seven books, and a continuation of the history of Thucydides, down to the battle of Mantinea; and the Life of Cyrus the Elder, more known under the name of Cyropædia. This celebrated production is not a real history, but rather a historical novel. It contains Xenophon's ideas respecting the best form of government; and the biography of the greatest ruler known at that time is embellished to illustrate the writer's principles. Xenophon considered the monarchical form of government the best; and his purpose seems to have been to recommend it to his countrymen. His style in general, and particularly in this work, is a model of elegant simplicity. Xenophon is therefore one of those classics which are particularly selected for the instruction of youth, though his philosophical works are not proper for beginners. The Greeks esteemed his merit as a writer so high that they called him the "Greek bee," and the "Attic muse." His works have been often published, sepa rately and together. The most recent editions are by Schneider and Weiske. There is no other instance on record of a man who was at the same time so great a general, so excellent a writer, and so amiable a philosopher.—Another Xenophon, an amatory poet, lived towards the beginning of the third century A. D., was a native of Ephesus, and wrote a tale called the History of Habrocomes and Anthia.

XERES, Francis; a Spanish historian, who accompanied Pizarro in his conquest of Peru, and acted as his secretary. By order of the conqueror, he addressed a detailed account of this great expedition to Charles V. The work of Xeres appeared at Salamanca in 1547, folio, under the title *Conquista del Piru: Verdadera Relacion de la Conquista del Piru y de la Provincia del Cuzco llamada la Nueva Castilla*, &c. It is sometimes to be found at the end of Oviedo's Natural History of the Indies. The work of Xeres has been translated into Italian, and inserted by Ramusio in the third volume of his Collection of Travels and Voyages. Notwithstanding the great partiality of Xeres for the conqueror of Peru, his history is important, as he was an eye-witness of every thing he relates, and took an active part in the war which decided the fate of that beautiful country.

XERES DE LA FRONTERA; a town of Spain, in Seville, on the Guadalete; fifteen miles north-north-east of Cadiz, and thirty-two south of Seville; lon. 6° 15′ W.; lat. 36° 41′ N.; population, between twenty and thirty thousand. It is pleasantly situated, surrounded with walls, the streets wider than those of Cadiz, clean and neatly paved, and some of the houses splendid. It is an ancient town, supposed to be built on the site of Asta Regia. In the environs is produced the wine called *sherry*, a corruption of Xeres. Some sweet wines are also produced in this neighborhood, of which the best known is the *vino tinto*, or *tent wine*. The country around is very fertile, and the climate delightful.—Near this town a battle was fought between the Moors and Goths, in 712, in which Roderic, the last king of the Goths, lost his life.

XERES WINE. (See *Sherry*.)

XERXES I, king of Persia, famous for his unsuccessful attempt to conquer Greece, began to reign in 485 B. C., and was the second son of Darius Hystaspes. (q. v.) He was preferred to his brother Artabazanes, who had been born before his father was raised to the throne; while Xerxes was born after that event, and was the son of Atossa, daughter of Cyrus. This preference caused no struggle between the brothers. After having subdued Egypt in a single campaign, he thought himself able to execute the plan of conquering Greece, which had been already conceived by his father. He collected for this purpose an immense army. The historians estimate it at a million of men. In all probability, the Greeks greatly exaggerated the number of their enemies; and the train of women and slaves, who followed the army, made, at least, half of its numerical amount: still, however, the power of Xerxes was beyond all comparison superior to that of the Greeks. But these fought for their home and their freedom, and the Persian soldiers were hirelings. By means of a bridge of boats Xerxes crossed the Hellespont. The Greeks awaited their enemy on the frontier of their country, in the pass of Thermopylæ. (q. v.) After the heroic Leonidas had fallen with his Spartans (see *Leonidas*, and *Ephialtes*), Xerxes pressed forward, and burned Athens, which had been forsaken by its inhabitants. The first naval battle between the two powers, at Artemisium, had been undecisive; but it inspired the Greeks with new confidence; and the second naval action, at Salamis (q. v.), in which, if we believe the Greek historians, two thousand Persian vessels were engaged against three hundred and eighty Greek, eventuated in the defeat of the Persians. Xerxes now quitted Greece, leaving behind him his best general, Mardonius, who, not long after, was entirely beaten at Platææ. Xerxes himself returned from his expedition in the most humiliating manner. The bridge of boats over the Hellespont had been destroyed, and he passed the strait in a small fishing boat. He now gave himself up to debauchery: his conduct offended his subjects, and Artabanus, the captain of his guards, conspired against him, and murdered him in his bed, in the twenty-first year of his reign, about 465 years before the Christian era. The personal accomplishments of Xerxes have been commended by ancient authors; and Herodotus observes, that there was not one man among the millions of his army, that was equal to the monarch in comeliness or stature, or that was as worthy to preside over a great and extensive empire. Justin exclaims, that the vast armament which invaded Greece was without a head. It is said of Xerxes, that, when he reviewed his army from a stately throne in the plains of Asia, he suddenly shed tears on the recollection that, of the multitude of men whom he saw before his eyes, in one hundred years, none would be living. He is also said to have ordered chains to be thrown into the sea, and the waves to be whipped, because the first bridge which he had laid across the Hellespont had been destroyed by a storm. He cut a channel through mount Athos, and saw his fleet sail in a place which before was dry ground. The very rivers are said to have been dried up by his army as he advanced towards Greece, and the cities which he entered reduced to want and poverty.

Xerxes II succeeded his father, Artaxerxes Longimanus, on the throne of Persia, about 425 years B. C., and was assassinated in the first year of his reign, by his brother Sogdianus.

Ximenes, Francisco, cardinal, archbishop of Toledo, and prime minister of Spain, a great statesman, to whom Spain is very much indebted, was born in 1437, at Torrelaguna, a small village in Old Castile, where his father was a lawyer. He studied at Salamanca, travelled afterwards to Rome, and obtained a papal bull, which secured to him the first vacant benefice in Spain. The archbishop of Toledo refused to give him any place; and, Ximenes having manifested irritation upon this refusal, he caused him to be imprisoned. Ximenes, nevertheless, recovered his freedom, and the cardinal Gonzalez Mendoza, bishop of Siguença, appointed him his grand vicar. He afterwards entered the Franciscan order, became father confessor to queen Isabella of Castile, and, in 1495, archbishop of Toledo. He did not accept this dignity till after many refusals, and an express command from the pope. As an archbishop, he was very zealous, conducting as a father towards the poor, abolishing a multitude of abuses, and adhering steadfastly to his resolution, that the public offices should be filled with honorable and well-qualified men. He gave excellent rules to the clergy of his diocese, and, in spite of all opposition, effected a reform in the mendicant orders of Spain, founded, in 1499, a university at Alcala de Henares, and undertook, some years after, an edition of the Old Testament in six languages. (See *Polyglot.*) Before this, in 1514, he had published, at Henares, an edition of the New Testament, in the original tongue. His activity was also displayed in other ways. Dissensions prevailed in the royal family. Philip of Austria, son of the emperor Maximilian I, had married Joanna, the only daughter of Ferdinand the Catholic of Arragon, and of Isabella of Castile. After the death of the latter, Philip received the kingdom of Castile, in right of his wife, the sole heiress of her mother. This gave rise to disputes between him and his father-in-law, which were composed by Ximenes. After Philip's early death (1506), Ferdinand became regent of Castile, for his grandson, afterwards the emperor Charles V, who was a minor. On this occasion he had been much assisted by Ximenes. Ximenes now received from the pope the cardinal's hat, was appointed grand inquisitor of Spain, and had a great share in the affairs of state. But as he knew Ferdinand's jealous disposition, he left the court, and returned to his archbishopric. The conversion of the Moors, and the plan of wresting some provinces from these unbelievers, particularly occupied his attention. With this view, he formed the project of passing over to Africa, in order to take the fortress of Oran, which was in the possession of the Moors. He applied the income of his archbishopric (300,000 ducats), the richest in Europe, to this purpose. A mutiny which arose among a part of his troops, who disliked the idea of having a clergyman for their leader, he suppressed immediately by strict measures. In May, 1509, he landed on the coast of Africa. In the dress of an archbishop, over which he wore a suit of armor, surrounded by priests and monks, as if in a religious procession, he led the land forces. A battle soon followed in the neighborhood of Oran, in which the Moors were defeated. The fortress was immediately taken, and the garrison put to the sword. Ximenes caused Oran to be fortified anew, changed the mosques into churches, and then returned as a conqueror to Spain, where Ferdinand received him with much pomp. When the latter died, in 1516, his grandson Charles being still a minor, Ximenes became regent of Spain, and effected many important changes during his regency, which continued only two years. He brought the finances into order, paid the crown debts, and restored the royal domains which had been alienated. He humbled the Spanish nobility, who hated him on account of his pride and severity. He caused the laws to be observed, and placed the Spanish military force upon a respectable footing. All his plans and conceptions were great. He possessed great sagacity and firmness, was slow in decision, but quick in execution. The Spanish cabinet was much indebted to him for the consideration in which it was held in Europe for a long time after his death. We have already mentioned that he was a patron of science. He was truly a great man. He has been accused, not entirely without foundation, of pride, severity, and even cruelty; but circumstances sometimes rendered such conduct necessary: his severity was particularly directed against the arrogance of the nobility of the kingdom. Upon various occasions he showed a benevolent spirit. Upon his entrance into Oran, when he saw the numerous corpses of the Moors who had fallen, he shed tears. "They were unbelievers," said he, "but men, who might have been brought to Christ. Their death has deprived me of the principal advantage of this victory." He died in 1517. His life, and his administration, have been the subject of various works.—See *Histoire du Cardinal Ximénes, par Fléchier, Évêque de Nismes* (Amsterdam, 1700), and the *Historie von dem Staatsministerio des Cardinal Ximenes* (Hamburg, 1791).

Ximenes, Augustin Louis, marquis de, a well-known French poet, descended from a family originally Spanish, was born in Paris in 1726. He was a soldier in his youth, and fought at the battle of Fontenai (May 11, 1745). He then became the associate of the most distinguished French *savans* of the eighteenth century, particularly Voltaire. Ximenes wrote some tragedies, among them *Don Carlos*; a poem called *César au Sénat Romain*; and another, in which he illustrates the idea, that the sciences contributed as much to the glory of Louis XIV, as he did to their progress. Two *Discours* of his, one in praise of Voltaire, the other on the influence of Boileau on his century, are esteemed. He also wrote *Lettres sur la Nouvelle Héloïse de J. J. Rousseau.* His works appeared in 1772 and 1792; the later ones under the title of *Codicille d'un Vieillard.* Ximenes was a friend of the revolution, but without passion or selfishness. He took no part in the proceedings, nor did he hold any office. His last work is *Discours au Roi.* He died at Paris in 1817.

Ximenes, Leonardo; a distinguished mathematician, who died in Florence in 1786, in his sixty-fifth year. He did much for hydraulics and astronomy.

Xiphias. (See *Sword-Fish.*)

Xuthus; the third son of Hellen and of Orseis. As he was passed over by his father in the partition of his lands, and his brothers expelled him from Thessaly, he went to Attica, where he assisted Erictheus against the Eleusinians, and married his daughter Creusa. (q. v.) But he was driven away again by his brothers-in-law, after he had founded the four cities of Attica. His sons were Achæus and Ion. (q. v.)

Xylography (from ξυλον, wood, and γραφω, I write); a name sometimes given to wood engraving. (q. v.)

Y.

Y; the twenty-fifth letter of the English alphabet, sometimes used as a vowel, sometimes as a consonant. It is a consonant at the beginning of words, in which cases it is produced by the emission of breath, whilst the root of the tongue is brought into contact with the hinder part of the palate, and nearly in the position into which the close *g* brings it, only a greater part of the tongue is pressed against the roof of the mouth. It has, in this case, the same sound with the German *j*, or the *g* in some parts of Germany. The letter *y* is derived from the Greek υ, which, however, had a different sound. The Germans have entirely rejected it, except in names of persons. A few persons of the old school continue it, and some use it still in the case of *seyn* (to be), to distinguish that word from *sein* (his); but these are very few, and the distinction is unnecessary, as the context will always show which word is meant. In Spanish, the custom of using *i* instead of *y*, where this letter is a vowel, is becoming more general; thus, *reyno*, *reynar*, are now giving way to *reino*, *reinar*. The Romans either retained the Greek *y* in nouns originally Greek, and betraying a Greek origin, as *physica*, *mythus*, *synodus*, *Harpyia*, *syste-*

ma, *Libya*, *myrrha*, *mysterium*; or changed it into a short *u*, or *o*, as in the case of δύο changed into *duo*, μῦς into *mus* (*musculus*), μύκαν into *mugire*, μύλλω, μύλη, into *molo*, *mola*; or wrote it *i*, as in *inclitus*, and probably pronounced it like the Greek υ, or the French *u*, or the German *ü*. Y, as a numeral letter, signifies 150, or, according to Baronius, 159, as in the verse—

> Y *dat centenos et quinquaginta novenos.*

Y, on French coins, denotes the mint of Bourges. Y, in its Greek form (Υ), is also called the *Pythagorean* letter, because the Pythagoreans were said to signify by it the proceeding of the *duad* out of the *monad*, or the sacred *triad* (q. v.); according to others, *convalescence* (ὑγιεια), or the dividing road of life. It is also called the *Druid's foot*.—In geography, *Y* is the name of several Chinese towns; also of *Y*, or *Wye*, an arm or inlet of the Zuyder Zee, Netherlands, on the south shore of which Amsterdam is built.—We have known, in Germany, a person whose family name was *Y*, pronounced, as this letter always is in Germany, *ee*.

Yacht; a vessel of state usually employed to convey princes, ambassadors, or other great personages, from one kingdom to another. As the principal design of a yacht is to accommodate the passengers, it is usually fitted with a variety of convenient apartments, with suitable furniture. Private pleasure boats, when sufficiently large for a sea voyage, are also termed *yachts*.

Yadkin. (See *Pedee*.)

Yakoutsk, or **Jakutsk**; a town in Siberia, capital of a province of the same name, situated on the Lena; lat. 62° 2′ N.; lon. 130° E.; population, about 7000. Yakoutsk lies in a plain, surrounded with mountains, and is the emporium of the northern fur trade, and an important entrepot of Russian and Chinese goods. Furs, corn, wine and salt are brought from Irkoutsk and Ilimsk by the Lena, and wines from Archangel. The cold is so excessive here in winter, that mercury freezes.—The province of *Yakoutsk* was formed in 1823, of a part of the government of Irkutsk. It borders on the Frozen ocean on the north, and the Chinese territories on the south, extending from 53° 15′ to 76° 15′ N. lat., and from 104° to 163° E. lon., and covering a superficial area of nearly 1,500,000 square miles, with a population of 140,000 souls. A great part of this extensive region is sterile and desolate. The inhabitants, who are chiefly Yakoutes and Tunguses, live principally by the chase, fishing, or the raising of reindeer. (See *Tartary*, and *Tunguses*.) There are but few Russians here. (See *Siberia*.)

Yale College. (See *New Haven*.)

Yam (*dioscorea sativa*); a slender herbaceous vine, having large tuberous roots, which are much used for food in Africa and the East and West Indies. They are mealy, and esteemed to be easy of digestion, are palatable, and not inferior to any roots now in use, either for delicacy of flavor or nutriment. They are eaten either roasted or boiled, and the flour is also made into bread and puddings. The juice of the roots, when fresh, is acrid, and excites an itching on the skin. There are many varieties of the roots; some spreading out like the fingers; others twisted like a serpent; others, again, very small, scarcely weighing more than a pound, with a whitish, ash-colored bark, whereas the bark is usually black. The flesh of the yam is white or purplish, and viscid, but becomes farinaceous or mealy when cooked. —*D. aculeata*, by some considered only an improved variety of the preceding, is universally cultivated in the East and West Indies, in Africa, and in all the islands of the Pacific. The roots are frequently three feet long, and weigh thirty pounds. All the varieties are propagated like the potato, but they arrive much sooner at maturity. The buds of the roots are not apparent; but still a small piece of skin is left to each set; for from this piece of bark, alone, the shoots proceed. Holes are made in rows two feet apart, and eighteen inches distant in the row: into these holes two or three sets are put, first covered with earth, and then with a little haum or rubbish, to retain moisture. The only after-culture consists in hoeing up the weeds. They are commonly planted in August, and are ripe about the November or December following. When dug up, the greatest care is taken not to wound them, as that occasions them to sprout much earlier than they would otherwise. An acre of ground has been known to produce from twenty to thirty thousand pounds weight. The species of *dioscorea* are all vines, bearing, usually, heart-shaped and strongly-nerved leaves, and inconspicuous flowers. One of them is common in our Middle and Southern States.

Yang-tse-Kian, or **Kian-Ku**; a river of Asia, which rises in the mountains of Thibet, and, after crossing the empire of China, from west to east, with a course of about 2400 miles, passing by the great city of Nanking, empties itself into the sea, 120 east of Nanking. It is the largest river in China, and reputed the largest in Asia. It changes its name in almost every province through which it passes.

Yanina. (See *Joannina.*)

Yankee, as Heckewelder says, is probably a corrupt Indian pronunciation of the word *English*, whom the Indians called *Yengeese*. They distinguished them from the Virginians, or Southern people, whom they called *Long Knives*.

Yankee-Doodle. In the early part of 1755, great exertions were made by the British ministry for the reduction of the French power in the Canadas. General Amherst was appointed to the command of the British army in the North Western America; and the British colonies in America were called upon for assistance, who contributed with alacrity their several quotas of men. The British army lay encamped, in the summer of 1755, on the eastern bank of the Hudson, a little south of the city of Albany. In the early part of June, the eastern troops began to pour in. Their march, their accoutrements, and the whole arrangement of their troops, furnished matter of amusement to the wits of the British army. The music played the airs of two centuries old. A physician of the British army, by the name of doctor Shackburg, to please brother Jonathan, composed a tune, and recommended it to the officers as a celebrated air. The joke took, and in a few days nothing was heard in the provincial camp but the air of *Yankee Doodle*. In less than thirty years from that time, lord Cornwallis and his army marched into the American lines to the tune of Yankee Doodle.

Yard; a long piece of timber suspended upon the mast of a vessel to extend the sail to the wind. (See *Ship.*)—*Yard-arm* is that half of the yard that is on either side of the mast when the yard lies athwart the ship.—*Yard-arm and Yard-arm;* a phrase applied to two ships when they are so near that their yard-arms nearly touch each other.

Yard Measure. (See *Measures.*)

Yarkand, or **Yarcund.** (See *Bucharia, Little.*)

Yarmouth, or **Great Yarmouth**; a borough town of England, in the county of Norfolk. It is in the form of an oblong quadrangle, having the sea on the east, and on the west the Yare, over which there is a bridge. It contains four principal streets, running parallel, which are crossed, at right angles, by 156 narrower ones, denominated *rows*, and is flanked by a wall on the east, north and south sides. The quay of Yarmouth is considered equal to that of Marseilles, and has no superior in Europe, except that at Seville, in Spain. Its length is one mile and 270 yards: in many places it is 150 yards broad; and part of the line is decorated with handsome buildings. Yarmouth has long been much frequented as a fashionable watering-place, and furnishes every accommodation for the health, comfort and amusement of its visitors. It has a theatre, fisherman's hospital, hospital school, town-house, &c. The harbor was executed under the direction of Joas Johnson, a Dutchman, who was brought from Holland to conduct the work. The extent of the haven, between the north and south piers, is 1111 yards. During the late wars, the importance of Yarmouth was greatly increased, owing to its being a grand station for part of the British navy; the roads opposite the town affording safe anchorage for a numerous fleet. The harbor is perfectly secure against every danger, but the coast is the most dangerous in Britain, and has been often the scene of the most melancholy shipwrecks. This place is advantageously situated for commerce, particularly to the north of Europe. Yarmouth is actively engaged in the herring fishery, and has a considerable coal trade. It is defended by three forts, which were erected on the verge of the beach, during the American war, and mounted with thirty-two pounders. An armory has been erected under the direction of Mr. Wyatt. It returns two members to parliament, chosen by the burgesses at large. Population, 21,115; 22 miles east by south of Norwich.

Yarmouth, or **South Yarmouth**, a seaport and borough in the Isle of Wight, formerly sent two members to parliament, but was disfranchised in 1832. Population, 564.

Yarrow, or **Milfoil** (*Achillea millefolium*). This European weed is now common, in barren soil, in many parts of the U. States. It is distinguished by the excessively dissected leaves; hence the name, which signifies *a thousand leaves*. The flowers are small, white, and disposed in a terminal corymb. The whole plant has a strong and disagreeable odor.

Yarrow; a celebrated pastoral stream of Scotland, in Selkirkshire, which rises at a place called *Yarrow Cleugh*, and, running east a few miles, forms a beautiful lake, called the *loch of the Lows*, which discharges its waters into St. Mary's loch. Issuing from the latter, the river, after a course of about sixteen miles through the ancient district of Ettrick forest, joins its waters to those of the Ettrick, two miles above Selkirk. Near Newark castle, it forms highly romantic and picturesque scenery. The Braes of Yarrow are celebrated in a well-known beautiful Scotch song.

Yawl. (See *Boat.*)

Yawning, or **Gaping**; an involuntary opening of the mouth, generally produced by weariness or an inclination to sleep, sometimes by hunger, sympathy, &c. It often precedes the fit in some intermittent fevers, and, in some instances, by the frequency of its recurrence, becomes a real disease. It is supposed to be determined by an interruption of the pulmonary circulation. Yawning, according to Boerhaave, is performed by expanding at one and the same time all the muscles capable of spontaneous motion, by extending the lungs, by drawing in, gradually and slowly, a large quantity of air, and gradually and slowly expiring it after it has been retained for some time, and then restoring the muscles to their natural state. Hence the effect of yawning is to move, accelerate, and equally distribute all the humors through all the vessels of the body, and, consequently, to qualify the muscles and organs of sensation for their various functions. When yawning is troublesome, long, deep respiration, or drawing in the air at long intervals, relieves it.

Yazoo; a river of Mississippi, which rises in lat. 35° N., near the borders of Tennessee, and runs south-south-west into the Mississippi, which it meets twelve miles above Walnut hills, 142 miles above Natchez. It is 230 miles long, and navigable 100 miles.

Yazoo Lands. (See *Georgia.*)

Year; the period in which the revolution of the earth round the sun, and the accompanying changes in the order of nature, are completed. In ancient times, when it was thought that the sun moved round the earth, this period was called the *solar* year. The accurate determination of the solar year, which required great knowledge of astronomy and exact observations, could only be reached by the successive efforts of many generations. According to Herodotus, the Egyptians were the first who approximated to the true length of the solar year. They divided it into twelve months, and each month into thirty days, so that their year consisted of 360 days; and the inhabitants of Thebes, who did not take into consideration the course of the moon, added five days. They afterwards remarked that the dog-star (Sirius), whose appearance just before sunrise denoted the overflowing of the Nile, became visible one day later every four years; but the year of 365 days was so intimately connected with their festivals, that a change could not be made without the greatest difficulty; and, although the festivals occurred later and later, yet the mode of reckoning remained the same until the Romans became masters of Egypt, when the calendar of Julius Cæsar was introduced. In Greece, the year was more correctly divided into 365¼ days; and the Grecian astronomer Sosigenes made this the basis of the Julian calendar. (See *Calendar.*) But the astronomer Hipparchus of Alexandria, about 150 years before Christ, found, by observation, that the solar year contained only 365*d.* 5*h.* 55′. His improvements, however, were not adopted. Later observations have shown that the true year is about 11′ 15″ shorter than the Julian year. Lalande made it 365*d.* 5*h.* 48′ 35″ 30‴; Zach, 365*d.* 5*h.* 48′ 48.016″. This period, so accurately determined, is called the *astronomical* year, from which the civil year of the calendar must necessarily differ. As the civil year cannot divide the days, it only reckons 365 in the year, and therefore does not fully agree with the astronomical. On account of the remaining 5*h.* 48″, &c., every four years a day is added to the month of February; and the year which thus consists of 366 days is called *leap* year. By the *lunar* year is meant the time required for twelve revolutions of the moon, which is, according to Lalande, 354*d.* 8*h.* 48′ 37″, making the lunar year 10*d.* 21*h.* shorter than the solar. Many nations of antiquity reckoned by the lunar year. A year is said to be *fixed*, if the equinoxes and seasons come on fixed days; but if they advance, the year is called *changeable*. Thus the Julian year is changeable; the Gregorian fixed. It is necessary to observe the difference between the tropical, sidereal and anomalistic year. The astronomical year is also called *tropical*, because its duration depends on the return of the sun to the equinoxes or the tropics. This differs from the sidereal year (the time required by the sun to complete a revolution with regard to a particular star), which is longer by 20′ 5.7″; and the anomalistic year is 26′ longer than the tropical, and is the time required by the sun to complete a revolution with regard to its apogee. The year of the Jews consisted of twelve months, which were divided alternately into twenty-nine and thirty days. A whole month was inserted in their leap year, between the sixth and seventh month. Their new-year's day was the day of the first new moon after the autumnal equinox. In the period of nineteen years, by which they reckoned, they had seven leap years, namely, the third, sixth, eighth, eleventh, fourteenth, seventeenth, and nineteenth. Among the Persians, the sultan Gelal (A. D. 1079), introduced a year which more nearly agrees with the astronomical than the Gregorian year does. According to his arrangement, a leap year occurs once in four years seven times in succession; the eighth leap year, however, does not take place till after a lapse of five years. During the time of the French republic, a year was invented also more exact than the Gregorian. A period of 86,400 years requires 20,929 leap years; therefore a day was to be inserted at the end of the year as often as the autumnal equinox would fall on the second day of the new year. (For further information, see *Calendar*.)

Yeast is the barm or froth which rises in beer and other malt liquors during a state of fermentation. When thrown up by a quantity of malt or vinous liquid, it may be preserved to be put into another at a future period, on which it will exert a similar fermentative action. Yeast is likewise used in the making of bread, which, without such an addition, would be heavy and unwholesome.

Yeddo. (See *Jeddo*.)

Yellow Bird, or American Goldfinch (*fringilla tristis*, L.), is not less than five inches in length; of a rich lemon-yellow; the crown, wings and tail black; bills and legs pale reddish-yellow; tail handsomely forked. The female and young are of a brown-olive color; beneath, yellowish-white. In September, the dress of the male becomes nearly similar to that of the female. This common, active and gregarious goldfinch is a very general inhabitant of the U. States. In summer, it is also to be met with in Canada, as far north as lake Winnipec, in lat. 49°. It is also met with in Mexico, and even in Guiana and Surinam. Its migrations are very desultory, and probably do not proceed very far, its progress being apparently governed principally by the scarcity or abundance of food. As the fine weather of spring approaches, the males put off their humble winter-dress, and now, appearing in their temporary golden livery, are heard tuning their lively songs as if in concert, several sitting on the same tree. In cages, to which they soon become reconciled, their song is nearly as animated and sonorous as that of the Canary. They raise sometimes two broods in the season. The nests are often built in tall young forest-trees, or lofty bushes. (See Nuttall's *Ornithology of the United States and of Canada*.)

Yellow, Naples. (See *Naples Yellow*.)

Yellowstone, one of the largest branches of the Missouri river, rises from lake Eustis, in the Rocky mountains, near the source of Lewis's river, which flows into the Oregon. Lake Eustis is about lat. 43° 20′ N. The Yellowstone runs east-north-east 1100 miles, and joins the Missouri 1880 miles from the Mississippi; lon. 104° W.; lat. 47° 50′ N. This river is nearly or quite as large as the other branch, which retains the name Missouri. The Big Horn, its great southern branch, and the Del Norte and Lewis's river, are all said to have their sources near the same spot, in about lat. 43°. Captain Clarke, the associate of captain Lewis, descended this river while returning from the Pacific ocean. During its whole course from the point at which he reached it to the Missouri, a distance which he computed at 837 miles, it is navigable for batteaux. Its navigation is impeded by only one ledge of rocks; and this may be passed without difficulty. The banks of the river are low, but not subject to be overflowed, except at a short distance below the mountains. The color of the river is a yellowish-brown, and its bed is chiefly composed of loose pebbles. The river flows with a velocity gradually diminishing in proportion to its distance from the mountains. The first part of its course, it moves four or five miles an hour; the latter part not more than two. In the upper part of its course, the country consists of high, waving plains, bordered by stony hills, partially supplied with pine: towards the Missouri, the country contains less timber, and spreads into extensive plains. Much of the land bordering on it is fertile. It abounds with beaver and otter, and along its banks are immense herds of elks, buffaloes and deer. The width of its bed, at its confluence with the Missouri, is 850 feet. When measured by Lewis and Clarke, the stream was 297 yards wide, and the deepest part of the channel was twelve feet. The river had then fallen to its summer level.

Yellow Fever. (See *Appendix* end of this volume.)

Yellow Weed. (See *Wold.*)

Yemen. (See *Arabia.*)

Yenite (*lievrite*) occurs in prismatic crystals, whose primary form is a right rhombic prism of about 111° 30′. Cleavage takes place parallel to the longer diagonal of this prism. Color black, or greenish-black; lustre submetallic, brilliant, or dull; opaque; hardness nearly equal to feldspar; specific gravity 3.8 to 4.1. The crystals are sometimes terminated, at one or both extremities, by four-sided pyramids, and vary from one inch in diameter to acicular. They are often much interlaced. It also occurs columnar and massive. On charcoal it fuses, before the blow-pipe, into a black, shining globule, attractable by the magnet. With borax it readily forms a dark and almost opaque glass. It consists of

Silex,	29.278
Lime,	13.779
Alumine,	0.614
Oxide of manganese,	1.587
Oxide of iron,	53.474
Water,	1.268

It is a rare mineral, having been found only, in good specimens, at Rio la Marina and cape Calmite, in Elba, where it occurs dispersed in crystals and rounded massive balls, in a thick bed of a blackish-green augite. It has also been found in the U. States, at Cumberland in Rhode Island.

Yeomen of the Guard; a sort of foot-guards, who attend at the palace of the king of England. The yeomen were uniformly required to be six feet high. They are in number one hundred on constant duty, and seventy off duty. The one half carry arquebuses, and the other partisans. Their attendance is confined to the sovereign's person, both at home and abroad. They are clad after the manner of king Henry VIII.

Yermoloff. (See *Jermoloff.*)

Yesd, or **Yezd**, or **Yeyd**; a town in Persia, in Irak, on the borders of Segestan and Kerman, 190 miles east of Ispahan, 210 north-east of Schiras; lon. 56° E.; lat. 31° 57′ N. It contains, according to Malte-Brun and Hassel, 4500 houses, according to the Edinburgh Gazetteer, 24,000 houses, of which 4000 are occupied by Guebres. It is situated on the borders of a sandy desert, contiguous to a range of lofty mountains. It is a great emporium of the trade between Hindoostan, Bukharia and Persia. The environs produce excellent pomegranates and grapes. The chief manufactures are silk stuffs and carpets. In 1396, this town was taken by Timur Bec, after a siege in which it is said 30,000 persons died of famine.

Yew (*taxus baccata*); an evergreen tree, belonging to the family of the pines, which is common in many parts of the north of Europe. The foliage somewhat resembles that of the hemlock-spruce, except that the leaves are larger: the fruit, however, is not a cone, but a small red berry, in the hollow part of the extremity of which a green seed appears. The yew was formerly extensively cultivated in Great Britain, and, on account of its gloomy and funereal aspect, was usually planted in church-yards. The wood, which is peculiarly hard, smooth and tough, was manufactured into bows; but, since the introduction of fire-arms, the tree is no longer planted except for ornament. In the formal style of gardening which was once prevalent, few trees were more the subject of admiration, from its bearing to be clipped, without injury, into almost any form. Yews were cut into the shape of men, quadrupeds, birds, ships, &c. The wood is hard, beautifully veined, and susceptible of a very high polish; hence it is valuable for veneering and other cabinet work, and is in frequent use. From its hardness and durability, it may be made into cogs for mill-wheels, axletrees, and flood-gates, which scarcely ever decay. The leaves are extremely poisonous, both to men and cattle.—A species of yew (*T. Canadensis*) is found in Canada and the extreme northern parts of the U. States. It is a low, prostrate shrub, commonly called the *ground hemlock*, and, indeed, is not distinguished by many from that tree.

Yezdegird, Era of. (See *Epoch.*)

Ynca. (See *Inca.*)

Yonne; a department of France, about seventy miles in length, and from thirty to forty in breadth. (See *Department.*)

York (anciently *Eboracum*); a city of England, capital of Yorkshire, in the West Riding, on the Ouse and Foss, 198 miles north-west of London; lon. 1° W.; lat. 54° N.; population in 1821, 20,787, in 1831, 25,359. It is regarded as the capital of the north of England, and the second city in rank in the kingdom, though far surpassed, in wealth and population, by many of the more modern trading towns. It is an ancient city, and was successively the seat of Adrian, Severus, and other Roman emperors. It is entered by four principal gates or bars, has six bridges, one over the Ouse, and five over the Foss, a cathedral, twenty-three churches (twenty within and three without the walls), houses of worship for Catholics, Methodists, Presbyterians, Independents and Quakers; a guildhall, county hospital, lunatic asylum, and various other public buildings and institutions. The cathedral, commonly called *York minster*, is a splendid specimen of Gothic architecture. Its whole length from east to west is 524½ feet; breadth of the east end, 105, of the west, 109; length of the cross aisles from north to south, 222 feet; height of the grand lantern tower, 213, of the two western towers, 196, of the nave or body of the church, 99; height of the eastern window, 75; breadth, 32 feet. It was a century and a half in building, from 1227 to 1377. The cathedral is remarkable for the simplicity of its plan, which is in the form of a Latin cross, the arms of which are all rectangular; and the transept is in the middle of the length of the building. (See *Architecture*.) The great eastern window consists of upwards of 200 compartments, containing representations of the Supreme Being, saints and events recorded in Scripture. The chapter-house is a magnificent structure, of an octagonal form, 63 feet in diameter, and 68 feet in height. In 1829, the minster was set on fire by a maniac, and suffered considerable but not irreparable damage: 231 feet of the roof fell in, but the exterior aspect of the structure was not defaced, and measures have been taken for repairing it. York is the see of an archbishop, who is styled "primate of England;" the archbishop of Canterbury being styled "primate of all England." The chapter of York, in addition to the archbishop, includes a dean, four archdeacons, a precentor, a chancellor, a subdean, twenty-nine prebendaries, a succentor, five vicars choral, &c. The province of the archbishop of York includes three dioceses, or sees of suffragan bishops, together with the bishopric of the Isle of Man. York castle, though on the site of an ancient building, is a modern structure, having been erected in 1701. In the reign of Henry V, York contained forty-four parish churches and seventeen chapels, and, before the reformation, the famous and wealthy abbey of St. Mary, of which only a small part remains. Besides the lunatic asylum, there is another institution, called the Retreat, one mile from the city, for the same class of patients, belonging to the society of Friends. It has accommodations for about sixty patients, and is under excellent management. About three miles from the city stands Bishopthorpe, the magnificent palace of the archbishop. Although the foreign commerce of York has been totally annihilated, it still retains considerable river trade; and vessels of 120 tons come up the Ouse as far as the bridge. There is some trade in gloves, linens, livery lace, glass and drugs; and printing and bookselling are conducted on a large scale. It derives a great part of its support from its fairs, assizes and races, and the winter residence of many of the provincial gentry. It sends two members to parliament.

York (formerly called *Toronto*); the capital of Upper Canada, on the northwest side of lake Ontario; lon. 79° 20′ W.; lat. 43° 33′ N. The population is about 3000. It is handsomely built. The public buildings are a government-house, a house of assembly for the provincial parliament, a court-house, a jail, various buildings for public stores, and houses of worship. About a mile from the town are the barracks for the troops usually stationed here, and other buildings properly appertaining to such an establishment. The harbor is nearly circular, formed by a very narrow peninsula, which encloses a beautiful basin about one mile and a half in circuit, and capable of containing, in security, a great number of vessels. The town is delightfully situated, the climate is mild, and the town and harbor are sheltered by high lands. In 1793, this town contained only a solitary Indian wigwam.

York; a short and navigable river of Virginia, formed by the union of the Pamunky and Mattapony. It flows into the Chesapeake opposite to cape Charles.

York and Lancaster. (See *England*.)

York, Frederic, duke of, second son of George III, was born at Buckingham house, in 1763. In the following year, he was elected prince-bishop of Osnabrück, in Hanover; in 1767, was invested with the insignia of the order of the Bath, and chosen a companion of the most noble order of the Garter in 1771. In the literary part of his education, he was associated with his elder brother, to whom he always continued to be much attached; and the direction of the studies of the two princes was successively confided to doctor Markham, afterwards archbishop of York, assisted by doctor Jackson, and to doctor Hurd, bishop of Lichfield. Prince Frederic was destined for the military profession, and, in 1780, having been appointed a brevet-colonel in the British service, he set off for the continent, and, after visiting Hanover, proceeded to Berlin, to study the tactics of his profession in the school of the great Frederic. During his absence, he was appointed colonel of the Coldstream guards, with the rank of lieutenant-general, and, in 1784, was created duke of York and Albany in Great Britain, and earl of Ulster in Ireland. In 1787, he took his seat in the house of peers, and in the debates on the regency, at the close of the following year, made his first speech in parliament. In 1789, a duel took place between the duke and colonel Lenox, afterwards duke of Richmond, who had required from his royal highness an explanation or retractation of an observation made by the latter. The duke not complying with the requisition, but expressing his willingness to waive the privileges of his rank, a meeting took place on Wimbledon common. The word being given to fire, colonel Lenox obeyed, and his ball grazed the hair of the duke, who fired his pistol in the air; and the affair terminated without any personal injury to the combatants. In 1791, the duke of York married the eldest daughter of Frederic William, king of Prussia. This union was the result of political arrangements; and, after a few years, a separation took place, arising from circumstances which did not imply any impropriety of conduct on the part of the duchess, whose death occurred in 1820. On his marriage, the duke of York received an augmentation of his income, which raised it to £35,000 a year, exclusive of the revenue of the bishopric of Osnabrück. In 1793, his royal highness was sent to Flanders at the head of a British army, to oppose the French. Valenciennes surrendered to the troops under his command, July 26; and, on the 22d of August, he sat down before Dunkirk, but was speedily obliged, by the French, to retire. In the campaign of 1794, Pichegru having taken the command of the French army, that of the duke, with his German allies, after experiencing various reverses, retreated into Westphalia; and in April, 1795, the remnant of the British army returned to England. In February of the same year, the duke of York was appointed commander-in-chief. In 1799, he was again employed against the French in Holland; but the expedition terminated with a truce, one condition of which was the liberation of 8000 French and Dutch prisoners of war in England. This expedition terminated the services of the duke of York in the field, in the course of which he proved himself wholly unequal to his station. In 1809, colonel Wardle, in the house of commons, charged the duke with having suffered a female favorite, named Mary Anne Clarke, to influence him in the disposal of commissions in the army. The evidence brought forward showed that promotion had been extended to persons recommended by this woman, who made a traffic of such transactions; but as nothing occurred to implicate the duke of York directly in the corrupt transactions between Mrs. Clarke and the persons to whom she sold her services, he was acquitted by a majority of eighty-two, who voted against the proposed general inquiry into his official conduct as commander-in-chief. His royal highness, however, thought proper to resign his post, in which, about two years after, he was reinstated by the prince-regent, with little or no objection on the part of the public. This circumstance produced in the duke a redoubled attention to his duties. From that time he exercised the most rigid impartiality in the distribution of promotion, and the humblest petition was sure of attention; the rights and comforts of the soldier were studiously attended to; and, without relaxing necessary discipline, some of its more odious and dispensable rigors were discountenanced. Upon the whole, both in a moral and a social, as well as in a military sense, the British army owes much to the exertions of this prince, whose rank and influence enabled him to effect improvements which equally good intentions, without such advantages, might have failed to secure. Among the future circumstances of his public life was his appointment to the post of keeper of the person of his father, in 1818, to which post was annexed a salary of £10,000 per annum. The last speech of the duke of York, in parliament, was against Catholic emancipation, and amounted to this, that he would never consent to that measure, should he be called on to reign. Not long after this event, he was attacked with a dropsy in the chest, which, after long and protracted suffering, ultimately proved fatal on the 5th of January, 1827.

YORK (Henry Stuart), CARDINAL OF. (See *Stuart, Henry*.)

York, Duke of. (See *James II.*)

York; count von Wartenburg, Prussian field-marshal, one of the most distinguished German generals in the wars against Napoleon. (See *Russian-German War.*) He fought in America on the side of the British during the war of the revolution, and here became acquainted with the operations of light troops, which he afterwards introduced, with improvements, into the Prussian army. He was made a colonel in 1806, and distinguished himself by skilful manœuvres during the disastrous state of the Prussian army after the battle of Jena. In 1808, when the Prussian army was reorganized, he was made major-general and inspector of all the light troops. In 1812, he was one of the officers of the Prussian auxiliary corps of 20,000 men, under general Grawert, which, with the Polish, Bavarian and Westphalian troops, formed the tenth corps under the command of Macdonald, and was destined to cover the left wing of the French army, and to operate against Riga. When general Grawert laid down the command, on account of his ill health, general York became commander of the Prussian corps. When Napoleon ordered the retreat of the tenth corps to the Memel, York commanded the third column, which left Mitau Dec. 20, followed by the Russians, under generals Witgenstein and Paulucci, who entered Memel, while their van extended along the Memel. Thus the situation of general York was critical; but it was less for this reason than on account of the political situation of Europe, that he concluded the well-known convention of Dec. 30, 1812, according to which the Prussian corps separated from the French army, and assumed a neutral position.—See Seydlitz's *Journal of the Prussian Forces in the Campaign of* 1812 (Berlin, 1823, in German).—The king of Prussia was obliged to express disapprobation of this step; but the attitude which was soon assumed by the whole kingdom showed that it was in reality agreeable to the government. The step was bold, and entirely on the general's responsibility, and became a measure of great consequence. After his corps, which was much diminished in number, had been reënforced in Prussia, general York led it to the Elbe, and obtained a victory at Danigkow, April 5, 1813, over the army of the viceroy of Italy. General York was engaged in the battles of Lützen (q. v.) and Bautzen (q. v.), and distinguished himself on the day before the latter action, at Weissig, by an obstinate resistance to the forces under Sebastiani, five times more numerous than his own. After the armistice concluded in that memorable year, his troops formed the first corps of the Prussian army, and, being united with the Silesian army under Blücher, shared in the victory on the Katzbach (q. v.), Aug. 26. Oct. 3, he gained a victory over Bertrand, near Wartenburg (q. v.), in consequence of which the Silesian corps was enabled to cross over to the left bank of the Elbe. From this achievement he received the title count York von Wartenburg. In the battle of Leipsic, he defeated Marmont at Möckern (q. v.), Oct. 16. He fought at Montmirail, Feb. 11, 1814. General Sacken had too hastily risked an engagement with Napoleon, which was likely to result in his destruction, when general York appeared, and enabled Sacken to escape, though with great loss. In the battle of Laon, March 9, he did great service, volunteering, with general Kleist, to conduct a nocturnal attack, which destroyed the corps of Marmont and Arrighi, and gave a decisive turn to the battle. After the peace, he received a considerable grant, and was made commanding general in Silesia and the grand-duchy of Posen. His son was wounded several times in the cavalry action near Versailles, July 1, 1815, and died a few days after—a circumstance which affected general York so much as to induce him to retire from service. May 5, 1821, he was made field-marshal-general. He died Oct. 4, 1830.

Yorke, Philip, first earl of Hardwicke, and lord high chancellor of England, was born in 1690, at Dover, in the county of Kent, where his father practised as an attorney, and brought up his son to the higher branch of his own profession. He was placed in the Middle Temple, and, being called to the bar in 1714, soon rose to great eminence as a counsel. In six years' time, the interest of lord chancellor Parker procured him the office of solicitor-general, in which capacity he displayed great professional knowledge and eloquence, as well as unbending integrity. Four years after, he was made attorney-general, and, on the resignation of lord King, in 1733, was made lord chief justice of the king's bench, with the barony of Hardwicke. On the decease of lord chancellor Talbot, in 1737, lord Hardwicke was elevated to the woolsack, and, during the long course of twenty years in which he presided in the equity courts, acquitted himself with so much ability, judgment and integrity, that only three of his decisions were ever called in question; and even all of these were, on appeal, confirmed by the upper house. In 1754, a patent was issued from the crown, advancing him to the rank of an earl; two years after which he resigned the seals, and retired from public life. Lord Hardwicke died in 1764. He was the author of a paper in the Spectator. His early professional work is an equity treatise, entitled the Legal Judicature in Chancery stated.

Yorkinos. (See *Guerrero.*)

Yorktown; a post-town, port of entry, and capital of York county, Virginia, on the south side of York river, twenty-nine miles north-west of Norfolk. York river affords, at this town, the best harbor in Virginia; but it has not become a place of large population or extensive trade. Yorktown is famous for the capture of lord Cornwallis and his army by the Americans under general Washington, Oct. 19, 1781. The whole number of the prisoners amounted to 7107. This was the last considerable battle in the revolutionary war, and was the immediate cause of the conclusion of the American contest for independence.

Young, Edward, a distinguished English poet of the last century, was born at his father's living of Upham, in Hampshire, in 1681, or, according to some, two years earlier. He was educated at Winchester school, and obtained a New college fellowship, which he resigned in 1708, for another at All-Souls, in the same university. Although originally designed for the law, which induced him to graduate in that faculty, the predominant bias of his mind towards a religious life at length induced him to take orders. His poems on the Last Day, and the Force of Religion, printed in 1713, strongly manifest this prevailing feeling. At one time he aspired to the representation of the borough of Cirencester in parliament; but, failing in this undertaking, he soon after entered the church, and obtained the living of Welwyn, Hertfordshire, with a king's chaplaincy. In 1741, the death of his wife, to whom he was much attached, appears to have much increased the melancholy of a mind originally of a sombre complexion; and to this event may be ascribed the production of his principal poem, the Complaint, or Night Thoughts, by which latter title it is more generally designated. Besides this poem, doctor Young was the author of three tragedies, Busiris, the Brothers, and the Revenge. Some satires, under the title of Love of Fame, the Universal Passion, with a poem entitled Resignation, written in 1759, conclude his poetical labors. As a prose writer, he is chiefly known by his Centaur not Fabulous, levelled against the prevailing manners of the time; and a treatise entitled Conjectures on original Composition, written at the age of eighty. Doctor Young, in his retirement at Welwyn, maintained the situation of a man of easy fortune. His latter years were, however, subject to much discontent: he had taken deep offence at the youthful irregularities of his son, and he fell under the sway of a housekeeper, by whom he was entirely governed. On his death-bed, he declined an interview with the former, but sent him his forgiveness, and made him his heir. His death took place in April, 1765, in his eighty-fourth year. The fame of doctor Young rests altogether on his poetry, comprising his satires, tragedies and Night Thoughts. The first are built on the supposition of fame being the universal passion of mankind. They abound more in flashes of wit and in caricature than in grave exposures of vice and folly; but they are lively and epigrammatic. As a dramatic writer, with much poetic conception and strong feeling, he is exaggerated and bombastic. The Revenge, however, keeps the stage; and its hero, Zanga, stands preeminent for theatric interest among the personages of modern tragedy. The Night Thoughts, on which the fame of Young for originality is exclusively founded, although occasionally tumid and extravagant, exhibit great force of language, and occasional sublimity of imagination. They are even more popular in France and Germany than at home, and have passed through a great number of editions. An edition of his entire works, in four volumes, octavo, was published by himself. (See his *Life*, by Herbert Croft, in Johnson's Lives of the Poets.)

Young, Arthur, a distinguished agricultural writer, born in 1741, died in 1820, was first placed in the counting-room of a wine merchant at Lynn; but his passion for agricultural pursuits induced him to forsake the mercantile life, and occupy himself with farming. After several unsuccessful attempts to conduct a farm, he determined to examine the mode of cultivation pursued in different parts of England. In 1770, he published the Farmer's Calendar, containing the Business necessary to be performed on the various Kinds of Farms during every Month in the Year (8th ed., 4 vols., 8vo., 1812), and, in 1784, began the publication of his Annals of Agriculture (40th vol., in 1804)—a work which had the most important influence upon the art of agriculture in England, and of which a considerable portion was translated into French, under the auspices of the government. In 1789, he was appointed secretary of the newly-erected board of agriculture. Young not only visited and examined, with great attention, the different counties of England and Ireland, but also made several tours on the continent, for the purpose of becoming acquainted with the agricultural processes in different countries. Among his numerous correspondents were his sovereign, George III, who wrote to him under the name of Ralph Robinson of Windsor, and Washington. Of his numerous works, we can mention only the principal:—Farmer's Letters to the People of England (1767), second volume under the title of Letters to the Landlords of Great Britain (1771); a Six Weeks' Tour through the southern Counties (1768, 2d ed., enlarged, 1769); a Six Months' Tour through the North of England (1770, 4 vols.); the Farmer's Tour through the East of England (4 vols., 1770); Tour in Ireland (2 vols., 1780); Travels in France, Spain and Italy, 1787—9 (1791, 2 vols., 4to.); Travels during the Years 1787—1790 (1792); Rural Economy (1772); and Farmer's Guide (1770, 2 vols., 8vo.).

Young, Thomas, M. D., a distinguished scholar, born in June, 1773, was educated partly at Göttingen and partly at Edinburgh. Having taken his degrees at the latter place, he went to London, and was some time lecturer at the royal institution. He was subsequently appointed physician to St. George's hospital, and, in 1794, was elected a fellow of the royal society. Doctor Young was equally eminent in science and in letters. He was particularly distinguished for his great knowledge of the practical application of science to the useful arts and the business of life; and his opinion was often called for by government, when these and kindred subjects were made matters of legislation. In this department, besides a great number of papers in the Transactions of the Royal Society, and Nicholson's Journal, and a variety of articles in the Quarterly Review, and the supplement to the *Encyclopædia Britannica*, some of which were, however, on literary subjects, doctor Young left behind him a Syllabus of a Course of Lectures on Natural and Experimental Philosophy (8vo., 1802), which contains the first publication of the general law of the interference of light; a Course of Lectures on Natural Philosophy and the Mechanical Arts (2 vols., 4to., 1807); Elementary Illustration of the Celestial Mechanics of Laplace (8vo., 1821), &c. He likewise edited the Nautical Almanac from the year 1819 to 1829. His productions in the department of archæology and criticism were also numerous, and are principally to be found in the Imperial Review, the London Quarterly Review, and the Archæologia. In the eighteenth volume of the latter work appeared his remarks on Egyptian papyri, and the Rosetta inscription, containing an attempt to interpret the Egyptian part of the inscription. In the article *Egypt*, for the supplement to the Encyclopædia, he treated the whole subject of Egyptian mythology, early history and hieroglyphics with great learning; but we have already given our reasons, in the article *Hieroglyphics*, for denying him the honor, claimed for him by his countrymen, of having discovered and explained the phonetic system, which the late ingenious and learned Champollion so ably developed. The discoveries of Champollion were followed by two additional works of doctor Young on the subject, under the titles, an Account of some recent Discoveries in Hieroglyphical Literature and Egyptian Antiquities (8vo., 1823), and Hieroglyphics collected by the Egyptian Society (folio, 1823). Doctor Young died in 1829.

Ypres, or Ypern; a city of Belgium, in West Flanders, capital of a district, on the river Y-perlee, from whence it takes its name; twenty miles south of Ostend, sixteen north-west of Lisle; lon. 2° 53′ E.; lat. 50° 51′ N.; population, 15,291. It is connected by a canal with Bruges, Ostend and Nieuport, is fortified, and tolerably well built. The principal public buildings are a very large Gothic town-house, an elegant cathedral, an exchange, a chamber of commerce, and a college. The chief manufactures at present are linen, lace, cotton, thread and silk. It is said to have contained, in the thirteenth century, 200,000 inhabitants, who carried on a great trade in woollen cloth; but, by the severity of the duke of Alva, the principal manufacturers were driven to England, from which time that branch of trade declined. Ypres has sustained several remarkable sieges.

Ypsilanti; an old Greek Fanariot family at Constantinople, descended from the Comneni, members of which have several times held the dignity of hospodar in Moldavia and Walachia. The grandfather of the princes Alexander and Demetrius, celebrated for their share in the Greek revolution, was executed at the command of the Porte, with the most horrible tortures. Their great-grandfather and uncle were victims of the bow-string. The father, Constantine Ypsilanti, hospodar of Walachia, was deposed by the Porte in 1805, but was reinstated at the request of Russia. When Russia threatened the Porte with war in 1806, he learned that his head was in danger, and fled to Jassy. The Russian government assigned him and his family Kiev as a residence. When the Russians advanced into Walachia, he hoped to recover this principality by their aid. With this view, he repaired thither, and armed the Walachians against the Turks; but, instead of the 40,000 men whom the Russian general required of him, he could collect only 5000. The body of Russian auxiliaries was therefore too weak; and Ypsilanti had to escape, by way of Transylvania, to Russia, where he died at Kiev, in 1816. He wrote several works. His sons entered the Russian service. The eldest, *Alexander*, imperial Russian major-general, and aid-de-camp of the emperor, born at Constantinople, Dec. 12, 1792, went with his father, in 1805, to Petersburg, and entered the Russian service. He fought with distinction at Polotzk, in 1812, and was a captain of hussars, when a ball, at the battle of Dresden, Aug. 27, 1813, carried away his right hand. In 1814, he spent some time in Weimar. About this time, the emperor made him a colonel and his aid-de-camp. In 1817, he received the command of a brigade of hussars, and was appointed major-general. In 1820, he became acquainted with the Hetaireia. (q. v.) He joined this association, and eventually became its head. When he saw that the breaking out of the insurrection could no longer be delayed, one of his couriers having been arrested in Servia, so that he had reason to fear the discovery of the whole plan, he resolved to plant in Moldavia the standard of revolt. He crossed the Pruth with a few attendants, and, on Feb. 23, old style (March 7), 1821, at Jassy, the capital of Moldavia, under the very eyes of the hospodar Michael Suzzo (q. v.), issued a proclamation, in which he announced that on this day Greece had kindled the torch of freedom, and thrown off the yoke of tyranny. (See *Greece, Insurrection of.*) This step of Ypsilanti's was connected with the plan of a general insurrection, which was to break out simultaneously in the Morea, on the islands, and in Constantinople. Ypsilanti hoped to promote the main project by his entrance into Moldavia. The insurrection was also hastened by the enterprise of Theodore Wladimiresko. This rude but daring Walachian, after the death of the hospodar of Walachia, Alex. Suzzo, Jan. 30, 1821, had, with a band of Arnaouts, called the Walachian peasants and pandoors to arms, in order to obtain from the Porte, by means of the assistance of Russia, which he promised them, the restoration of the ancient rights of the country. Ypsilanti, who, however, was in no way connected with Wladimiresko, gave his companions and all the Hetairists, who hastened to him from Russia and Germany, the assurance that Russia would assist the cause of Greece. But the military insurrections in Italy, on account of which the congress of Laybach was convened, induced the emperor Alexander to express publicly his disapprobation of the undertaking of the Hetairists, and to summon their leader, the prince Alex. Ypsilanti, to make his defence. As he did not obey, the emperor caused his name to be struck from the rolls of the Russian army. The Russian consul at Jassy had already, April 9, issued two proclamations, in the name of his sovereign, commanding prince Ypsilanti and his adherents to return immediately to Russia, and exhorting the Moldavians to tranquillity and obedience to the Porte. Mich. Suzzo was, in consequence, obliged to leave Moldavia, April 11; and the boyards sent deputies to the Porte, praying that another hospodar might be given them, adding the assurance, that they would themselves suppress the rebellion. Ypsilanti, when he learned this, was on his march to Bucharest. He and his band, of about 5000 men, persisted firmly in their enterprise. April 10, he entered Bucharest, which city Wladimiresko, who would not join Ypsilanti, had left, with his pandoors, shortly before. April 12, Ypsilanti marched to Tergowist, where he wasted his time while Wladimiresko was negotiating with the Porte. The boyards themselves had refused all participation in Ypsilanti's attempt; and many of them had fled, with their wives, children and property, to Transylvania. Wladimiresko's insurrection was directed more against the boyards than against the Porte. At the same time, the three pachas of Widdin, Silistria and Brailow, with 10,000 Turkish troops, entered Walachia and Moldavia. At Jassy, where the Hetairists had wrested the administration from the boyards, complete anarchy prevailed. Jussuf, seraskier of Brailow, defeated the Greeks at Galacz, May 13, took the city by storm, destroyed the French flotilla on the Danube, and compelled the Hetairists, May 18, to evacuate Jassy. George Cantacuzeno retired, with about 3000 men, without opposition, behind the Pruth. Meanwhile Wladimiresko had regained possession of Bucharest, where he continued to negotiate with the Turks. May 28, he relinquished the city to Kiaya Mehmed, pacha of Silistria, and, after some inconsiderable skirmishes with the Turks, retreated to Pitescht, to make advances to prince Ypsilanti. But Ypsilanti caused him to be seized by captain Jordaki (called also *Gorgakis*, or *George of Olympus*), conveyed to Tergowist, and, after a trial by a court-martial, to be beheaded as guilty of high treason, June 7. This transaction excited much dissatisfaction and defection, because Theodore Wladimiresko had never formally acknowledged Ypsilanti's supremacy. A portion, indeed, of his Arnaouts, Walachians and pandoors joined the Hetairists; but the pacha of Brailow was soon able to enter into secret communications with these Arnaouts. When Ypsilanti left his fortified position at Rimnik, and marched towards Dragaschan, his van, of 1000 men, led by the brave Jordaki, being attacked by the Turks, on June 19, the Walachians and pandoors took to flight, and Jordaki, with a few hundred men, was obliged to fall back to the sacred band of the Hetairists. A part of the Arnaouts now fled, and abandoned the artillery, consisting of five pieces of cannon. At this moment, a nephew of the murdered patriarch Gregory (q. v.) stepped forward, and exhorted his companions to show the sacredness of their cause by a heroic death. The youths advanced in close order, and fell by files in the conflict. A few only succeeded in saving themselves, with Ypsilanti, in the fortified monastery of Costia. Thus was the flower of Greece destroyed. Alexander Ypsilanti now gave up the cause of Greece. Having crossed the frontiers, he was arrested in Transylvania, and, with his brother Nicolas, conveyed as a prisoner of state to the fortress of Mungatsch, in Hungary. From this place they were both removed, in August, 1823, to the fortress of Theresienstadt, in Bohemia, where they were treated with great mildness. The above-mentioned division of Greek troops, under prince George Cantacuzeno, was attacked by the Turks, June 25, at Stinka, on the Pruth, and defeated, after an engagement of six hours. Moldavia and Walachia remained occupied by the Turkish troops, who committed the greatest outrages, and were not entirely withdrawn from both principalities till 1826.—See *Nouvelles Observations sur la Valachie, etc., suivies d'un Précis historique des Événemens qui se sont passés dans cette Province en* 1821, *par un Témoin oculaire, avec le Plan de la Bat. de Dragaschan. Par F. G. L.* (Paris, 1822).—After prince Alexander had remained two years in Mungatsch, and four years and a half in Theresienstadt, Russia demanded his release, in August, 1827. This, however, was not granted until the end of November, and then under the condition, imposed by Austria, that the prince should not leave the Austrian dominions. Alex. Ypsilanti died at Vienna, in January, 1828, hardly thirty-six years of age.—During this time, *Demetrius Ypsilanti*, with full powers from his brother Alexander, had repaired to the insurgents in Greece. Demetrius (born Dec. 25, 1793) entered the Russian hussar regiment of guards, as a cornet, in 1815, and was soon after appointed adjutant of general Rajewsky. As second captain (equal in rank to lieutenant-colonel in the troops of the line), he distinguished himself in the campaign of 1814. He now appeared as commander in the Morea, where, as long as the Russian party had the preponderance, he was held in respect. He took the lead in the Greek government at Argos, was then proclaimed prince of Peloponnesus, and appointed general-in-chief in that peninsula. At the end of 1822, he became president of the legislative council. But the English party having begun to prevail, he was removed from his situation in 1823, and retired from public affairs, but on important exigencies took an active part. He saved the Peloponneseus on the invasion of Dram Ali, by throwing himself, with a band of Hellenists, into the fortress of Argos, and giving the other companies time to assemble. Against the resolution of the third national assembly of the Greeks at Epidaurus, requesting the British ambassador in Constantinople to negotiate a peace between the Porte and the Greeks, which should provide for an independent Greek government, on condition of a yearly tribute, Demetrius Ypsilanti entered a protest.

When Capo d'Istrias was appointed president of the Hellenic republic, in 1828, prince Demetrius received a command in Acarnania.—A third brother, *George*, born at Constantinople, March 21, 1794, accompanied Alexander Ypsilanti on the expedition to Moldavia and Walachia, and shared his misfortunes and his long imprisonment.—The fourth brother, *Nicolas*, born at Constantinople, August 16, 1796, was commander of the Sacred Band. He had the same fortune as Alexander and George.—Of the two sisters, *Catharine* and *Maria*, the latter, born in 1798, devoted to the cause of her country her whole dowry, amounting to 350,000 francs.—The youngest brother, *Gregory Theodatius*, born at Bucharest, in 1805, received his education in Paris. The annual incomes of the family amount to one and a half million roubles.

Yriarte. 1. *Juan de Yriarte*, royal librarian and member of the Spanish academy, a bibliographer of note, was born in 1702, on the island of Teneriffe. He studied classical literature at Paris. After eight years, he went to London, and soon after home, where he chiefly occupied himself with English literature. In 1724, he went to Madrid to study law; but his inclination to philology and bibliography predominated, and, being constantly in the royal library, then under the direction of the historian Juan de Ferreras, the latter soon made him secretary of the library. The fruit of his biographical studies was the catalogue of Greek manuscripts in that collection, the first volume of which appeared in 1764, folio, under the title *Regiæ Bibliothecæ Matritensis Codices MSS. Joannes Yriarte excussit, recensuit, Notis, Indicibus, Anecdotis pluribus evulgatis illustravit*, &c. This volume contains accounts of nearly sixty manuscripts, which Constantine Lascaris had copied with his own hand. This work was completed by a second volume. Yriarte also prepared catalogues of the geographical, chronological and mathematical works contained in the royal library, which appeared in 1729 and 1730, made many corrections and additions to Antonio's treatise on Spanish authors, &c. As a member of the Spanish academy, into which he was admitted in 1742, he was very active, and contributed many observations to the treatise on Spanish orthography, to the Castilian Grammar and the Dictionary of the academy. Among his Latin poems, his numerous epigrams deserve mention. He was an industrious contributor to the *Diario de los Literatos*. His favorite literary occupation was the collecting of Spanish proverbs, of which he brought together about 15,000, from books as well as from the mouths of the people. His Latin Grammar, on which he labored forty years, contains rules in Spanish rhymes, with explanations in prose: it was not published until after his death, by his nephew in 1771, at Madrid, who also published, in 1774, the miscellaneous works of his uncle. He died in 1771, at Madrid.—2. *Tomas de Yriarte*, of whom a few words were said under the head *Iriarte*, nephew of the preceding, one of the best Spanish poets of modern times, was born in 1752. He first appeared as a poet in 1770, with a comedy (*Hacer que Hacemos*). This was followed by several translations of French plays for the royal theatre, and a few original dramatic compositions. But they are forgotten; and his literary fame is founded on his Fables. Before the publication of these, he produced a didactic poem, in five cantos, On Music (*La Musica*), the first edition of which (Madrid, 1779) is distinguished by typographical beauty. This poem is written in elegant language, but is deficient in poetical conception. Grainville translated it, in 1800, into French. In his Literary Fables (*Fabulas Literarias*), which first appeared in 1782, Yriarte attacked what he considered the faults and errors of literary men. They are the productions of an unpoetical period, in which the French manner was predominant in Spain. They are, therefore, cold, and without humor; but the language is easy, and there is much variety and elegance in the metres. They have been translated into French and German. In 1787, he collected his works in prose and verse, at Madrid, in six volumes, of which the first contains the Fables and *La Musica*. In the second are eleven Epistles, mostly satirical, also chiefly directed against the errors of scholars. The other volumes contain, besides, a number of imitations and original poems, also a metrical translation of the Epistles of Horace to the Pisos, with explanatory notes. One of his enemies, Juan Pablo Forner, irritated by his satires, wrote a bitter attack on him under the title of *El Asno erudito* (The Learned Ass). Yriarte replied with his *Para Casos tales suelen tener los Maestros oficiales*. In 1788, he published a comedy, *La Señorita mal Criada*, in which, as in a former, *El Señorito mimado*, the Spanish critics praise the strict observance of the three unities. Yriarte died in 1794.—See *Ensayo de una Biblioteca Española de los mejores Escritores del Reynado de Carlos III, por Sempere y Guarinos* (Madrid, 1789, 6 vols.).

Ysenburg. (See *Isenburg*.)

Yttria is the name of a very rare earth, discovered in the composition of a mineral found at Ytterby, in Sweden; hence its name. The name of the mineral is *gadolinite*. (q. v.) The earth may be obtained by fusing the gadolinite with two parts of caustic potash, washing the mass with boiling water, and filtering the liquor, which is of a fine green. This liquor is to be evaporated till no more oxide of manganese falls down from it in a black powder; after which the liquid is to be saturated with nitric acid. At the same time, digest the sediment that was not dissolved in very dilute nitric acid, which will dissolve the earth with much heat, leaving the silex and the highly-oxidized iron undissolved. Mix the two liquors, evaporate them to dryness, redissolve and filter, which will separate any silex or oxide of iron that may have been left. A few drops of a solution of carbonate of potash will separate any lime that may be present; and a cautious addition of hydrosulphuret of potash will throw down the oxide of manganese that may have been left; but if too much be employed, it will throw down the yttria also. Lastly, the yttria is to be precipitated by pure ammonia, well washed and dried. It is perfectly white. Its specific gravity is 4.842. It has neither taste nor smell. It is infusible alone, but with borax, melts into a transparent glass, or opaque-white, if the borax is in excess. It is insoluble in water, and in caustic fixed alkalies; but it dissolves in carbonate of ammonia, though it requires five or six times as much as glucine. It is soluble in most of the acids. The salts have the following general characters:—Many of them are insoluble in water. Precipitates are occasioned in those which dissolve, by phosphate of soda, carbonate of soda, oxalate of ammonia, tartrate of potash, and ferroprussiate of potash. If we except the sweet-tasted, soluble sulphate of yttria, the other salts of this earth resemble those with a base of lime in their solubility. When yttria is treated with potassium in the same manner as the other earths, similar results are obtained. The potassium becomes potash, and the earth assumes the appearance of a metal. Its texture is scaly; its color gray-black, and lustre perfectly metallic. This scaly texture distinguishes it from aluminum and glucinum. Yttrium—for this is the name of the metallic base—is not oxidized either in air or water, at common temperatures; but, when heated to redness, it burns with splendor, and becomes yttria.

Yttro-Cerite; a massive mineral, of a reddish, grayish-white, or violet-blue color. It occurs in crusts, sometimes having an indistinct cleavage; opaque; yields to the knife; specific gravity 3.447. Its constituents are oxide of cerium 13.15, yttria 14.6, lime 47.77, fluoric acid 24.45. It has hitherto been found only at Finbo, near Fahlun, in Sweden, imbedded in quartz.

Yttro-Tantalite occurs massive, has a degree of hardness above apatite, a specific gravity of 5.3, or 5.8, a metallic lustre, and a blackish-brown color. It is opaque. Under the blow-pipe, it decrepitates at first, but melts, by an increase of heat, into a greenish-yellow slag. It consists, according to Vauquelin, of 45 oxide of columbium, 55 of yttria and oxide of iron. It is found, along with gadolinite, at Ytterby, in Sweden, but is exceedingly rare.

Yucatan; the most easterly state of the Mexican confederacy, in the form of a peninsula, jutting out into the gulf of Mexico, bounded north-west by the gulf of Mexico, south-east by the bay of Honduras, south by Guatamala, south-west by the state of Vera Cruz. The isthmus which connects it with the continent of North America is about 120 miles wide. Square miles, 30,000; population, 496,990; chief towns, Merida, the capital, Campeachy, and Valladolid. The soil is very fertile, and, when under proper cultivation, produces great crops of cotton, tobacco, pepper, the sugar-cane, indigo, maize, and other kinds of grain. The scarcity of water in the central parts of the state renders the crops variable; and years occur in which the poorer classes are driven to seek subsistence from roots. Cattle, fowls, and bees, are very numerous; wax and honey plentiful; but there are no mines. The forests abound with wild beasts. The principal article of commerce is logwood. The climate is hot, the summer beginning in April and ending in September; but January and February are also warm. The English have some small settlements on the east coast of Yucatan for procuring logwood, the chief of which is at Balize.

Yug, in the Hindoo theology; the name of the ages of the world. The duration of the universe was fixed by the deity at 12,000 divine years, each of which contains 360 human years; so that the whole amount is equal to 4,320,000 human years. This duration was divided into four ages, which are to each other as 4, 3, 2, 1. The first age, *Krita-Yug*, comprises 4000; the second, *Treta-Yug*, 3000; the third, *Dwapar-Yug*, 2000; the fourth, *Kali-Yug*, 1000 divine years. After each age, is a period of darkness, the first of 800, the second of 600, the third of 400, and the fourth of 200 divine years, which complete the period of 12,000 years. The whole period is called *Maha-Yug*, the great *Yug*, or *Sadir-Yug*, a period of four ages. 1000 *Maha-Yugs* form the day of Brama, from morning to evening; and an equal number his night, when he sleeps; the consequence of which is the dissolution of the universe into its original elements; so that every thing is sunk in a great sea. When Brama wakes, every thing revives. 360 such days form Brama's year, and he lives 100 such years. Upon his death, a general dissolution again takes place, and lasts 100 years of Brama: then Brama is born again, and the worlds begin their old alternation of existence and dissolution. The whole life of Brama is one day of Vishnu, from morning to evening. 360 such days make his year. He lives 100 years, and remains dead an equal period. Siva, alone, is immortal. This is evidently the doctrine of the votaries of Siva, while the worshippers of Vishnu claim a similar preëminence for their god. In the Bhagavat-Purana, it is further observed, that, during a day of Brama, or 1000 *Maha-Yugs*, fourteen dynasties (*manwantaras*) of men and gods follow each other: each, therefore, continues about 71 *Maha-Yugs*. Each has the name of its first ruler. We live in the seventh. Rhode has shown that Buddhism and Bramaism are mingled in this fable of the *Yugs*. The *Yugs* are also distinguished in a moral respect. As in the Persian, so in the Indian theology, virtue is made to decline in each successive age. It is represented under the figure of a steer, standing, in the first age, on four legs; in the second, on three; in the third, on two; and in the fourth, on one. The *Zend-Avesta* also says, in the first 1000 years Ormuzd and the good rule alone; in the second, Ahriman begins to appear; in the third the influence of Ormuzd and Ahriman is equal; and, in the fourth, Ahriman's power is superior. The present is the last age of the world, the *Kali-Yug*, which, according to the calculation of the Bramins, began thirty years after Krishna's death, or 3101 years before Christ; so that at present, in 1833, we live in the 4934th year of the *Kali-Yug*. Among those who were saved at the time of the third dissolution of the world, and passed over into the fourth *Yug*, was a pious king named *Kistnei*, under whose government virtue continued to flourish. But now the steer (the symbol of virtue) stands only on one foot, and charity is the chief virtue to be practised. At the end of this age, after Kalighi's appearance, fire and water will destroy every thing, and the first *Yug* will be repeated, the sun, moon, and all the planets, being in the same sign of the zodiac as at the beginning of the world. Besides this, the Indians reckon by several other eras. (See *Epoch*; also *Hindoo Mythology*, in the article *India*.)

Yule; the name formerly given to Christmas. (q. v.)

Yumna. (See *Jumna*.)

Yverdun, Iverdon, or **Ifferten**; a town of Switzerland, in Vaud, at the south end of the lake of Neufchatel, at the entrance of the river Orbe, on an island, 16 miles north of Lausanne, 34 south-west of Berne, 44 north-north-east of Geneva; population, 4000. It is delightfully situated, is neatly built, and has a public library, and a brisk traffic, chiefly in the transit of goods—an advantage which it owes to its command of water carriage, boats going from it into the Rhine, by the lakes of Neufchatel and Bienne, and the rivers Thiel and Aar. It has also considerable manufactures of linen, calico, &c. At this place is the school of the celebrated Pestalozzi, which was first established here in 1804, and an ancient castle appropriated to its accommodation by the government. There are several other establishments for education. The sulphur baths here were known even to the Romans.

Yvernois, sir Francis d', a Genevan politician, was born at Geneva, in 1756, and received an excellent education in his native city. His restless ambition involved him in the disturbances which distracted the little republic, and he was banished in 1782. After the revolution in January, 1789, he returned to Geneva, and became counsellor of state. But, being unable to prevent the interference of the French republic in the internal affairs of Geneva, or to play a prominent part after the democratic party had attained the ascendency, he went to England, and made various journeys in Europe as travelling tutor to lord Eardley. In the mean time, Geneva had been united to

France in 1798; but Yvernois and others had been declared incapable of ever becoming French citizens. He afterwards settled in England, and published political and literary works, in which he expressed his hatred of France with eloquence and talent. This gained him the favor of the British government, and the king of England knighted him. After the downfall of the French empire, in 1814, the republic of Geneva appointed him its minister in London, whence he proceeded, in the same capacity, to the congress of Vienna. After Napoleon's second abdication, in 1815, he returned to Geneva. Among the writings of Yvernois are his *Réflexions sur la Guerre*, in which he shows the necessity of reducing France to her old limits; and his *Tableau des Pertes que la Révolution et la Guerre ont causées au Peuple Français*. Most of his other writings had only a temporary interest.

Yvetot; a town of Normandy, in France, 90 miles north-west of Paris, with about 10,000 inhabitants. It is the seat of some tribunals, and of considerable woollen, linen and cotton manufactures. The lords of this place bore the title of king from the year 524 till the time of Louis XI.

Z.

Z, the last letter of the English alphabet, is a sibilant and semivowel, representing the same sound which the Germans represent by *s*, or the soft sound of the English *s*, the only difference between *s* and z being that the breath is emitted less forcibly in pronouncing the latter: the organs of the mouth are in the same position in both cases. (For further observations connected with this point, see the article *S*.) The z, in German, has a compound sound, corresponding to our *ts*; and modern German writers, therefore, omit the *t*, formerly written before z, in some German words. In Italian, it is sometimes sounded like our *ts*, sometimes like *ds*. In Spanish, it corresponds to our *th*. In French, when pronounced at all, it has the sound of a forcible *s*. Z was originally a Greek letter (ζ). As a numeral, it signified two thousand, according to the verse—

> *Ultima Z tenens, finem bis mille tenebit.*

When a dash was added at the top (Z̄), it signified two thousand times a thousand. On French coins, Z denotes those struck at Grenoble.

Zaardam, or **Saardam**; a town in North Holland, near the Y, five miles north of Amsterdam; population, 10,717. It consists of two villages, East and West Zaardam. It carries on an active trade in timber, tar, train-oil, &c.; has extensive manufactures of ropes, tobacco, and paper; but the most important branch of its industry is and has long been, ship-building. It was here that the czar Peter the Great studied the art of ship-building; and the house which he occupied is still pointed out.

Zabians. (See *Sabians*.)

Zabira, George; a learned Greek, born in Sialista, in Macedonia, and educated in Thessalonica. About the year 1764, he went, as a clerk, to Hungary. At Colotscha, he learned Latin, and the modern European languages, and collected a library. He afterwards visited several German universities, and established himself at Szabadszallas, as a merchant. In 1795, he caused Cantemir's work on the Cantacuzeni (q. v.) and the Brancowani to be published. Among his manuscripts is the Θεατρον 'Ελληνικον, a biographical catalogue of all modern Greek authors who have lived since the conquest of Constantinople. He died September 19, 1804.

Zacatecas; formerly an intendancy, now a state of Mexico, bounded north by Durango, east by San Luis Potosi, south by Guanaxuato, and west by Guadalaxara; 85 leagues long, and 51, where widest, broad; square leagues, 2353; population, 272,901. It is a mountainous and arid tract, with a rigorous climate, and very thinly peopled. There are eleven convents for males, and four for females, in the state. The table-land, which forms the central part, rises to upwards of 6500 feet above the level of the sea. It is famous for its rich silver mines. The capital, of the same name, lies 240 miles north-west of Mexico; lon. 101° 35′ W.; lat. 22° 50′ N.; population, 30,000. It is situated in a mountainous country, in the vicinity of some of the richest silver mines in Mexico, which are wrought by great numbers. It is well built, and contains a college, an hospital, a number of churches, and a mint, in which were coined, from 1810 to 1826, 32,108,185 dollars. Several other towns, as Sombrerete, Fresnillo, Jerez, Pinos, and Nochisltlan, have a population varying from 14,000 to 18,000 souls. Maize, wheat, chile, &c., are among the products.

Zach, Francis, baron von, one of the most eminent astronomers and mathematicians of our day, was born at Presburg, in 1754, and died at Paris, of the spasmodic cholera, in 1832. After having entered the Austrian military service, and passed some years in London, he was appointed grand chamberlain to the duchess dowager of Saxe-Gotha, who then resided at Eisenberg, and, in 1804 and 1805, accompanied her on a tour through France. From 1787 to 1806, he had the direction of the observatory at Seeberg. After that time, he resided chiefly abroad, and accompanied the duchess to Paris and Italy. In the latter country, through his influence, an observatory was erected at Naples, and another near Lucca. Baron von Zach also contributed much to extend the field of astronomical science by his writings, in which are united clearness and profoundness. His Geographical Ephemerides, and the continuation of the same work under the titles of Monthly Correspondence for promoting the Knowledge of the Heavens and the Earth, and *Correspondance Astronomique*, are works of great value. He also published several treatises on particular subjects, and was the author of many papers in different periodical publications. Of his works we will mention his treatise *L'Attraction des Montagnes et ses Effets sur les Fils-à-Plomb* (Avignon, 1814, 2 vols.); his *Tabulæ Motuum Solis novæ et correctæ* (Gotha, 1792, 4to.); and his *Almanacco Genovese*, which he edited in Genoa.

Zachariæ, Just Frederic William, one of the German authors who prepared the way for the advancement of German literature after the time of Gottsched, was born in 1726, and died in 1777, professor of belles-lettres in the Carolinum at Brunswick. His *Renomist*—the German word for disorderly students (see Russel's *Germany*)—a comic epos, published in 1742, and some other works, display humor. His works appeared in a second edition, in 2 vols. (Brunswick, 1772). An additional volume was published in 1781.

Zachariah. (See *Zechariah*.)

Zacynthus. (See *Zante*.)

Zadoc (*Sadoc*). (See *Sadducees*.)

Zaffre is the residuum of cobalt, after the sulphur, arsenic, and other volatile matters of arsenical cobalt, have been expelled by calcination. The zaffre that is commonly sold, and which comes from Saxony, is a mixture of oxide of cobalt with some vitrifiable earth. It is of a gray color.

Zaftleeven, or **Sachtleeven**, Hermann, one of the most skilful painters of landscapes, was born at Rotterdam, in 1609. He lived in Utrecht, and died in that city, in 1685. His views exhibit the environs of Utrecht, or Rhenish scenery. D'Argenville says that Zaftleeven visited Italy; but the Dutch writers deny this. He portrays nature under serene and elevated aspects; a smiling heaven overarches his cities and mountains, and a warm air breathes itself over the sunny and retiring distance. His paintings are scattered in different places. Descamps gives a list of his works. Zaftleeven also employed the etching needle.—His brother *Cornelius*, born at Rotterdam, in 1612, was a successful painter of scenes from common life.

Zagatai. (See *Tartary*.)

Zahara, Desert of. (See *Sahara*.)

Zähringen; a village near Freiburg, in what was formerly the Austrian Brisgau, with the ruins of an ancient castle, from which the ancient dukes of Zähringen, the ancestors of the grand-dukes of Baden, derived their name.

Zaims, and **Timariotes**, are possessors of Turkish fiefs, who, according to a law of the sultan Amurath I, in the fourteenth century, are bound to furnish spahis, or cavalry, as the condition of enjoying their fiefs. The Porte maintains only about ten or twelve thousand spahis (q. v.), who are paid by the government, and called *kapikuly*. The rest of the spahis are furnished by the possessors of *timars*. The number of all the zaims (i. e. such vassals as have a revenue of from 20,000 to 100,000 aspers annually from their fiefs) is about 6689. For every 5000 aspers, they must send one horseman into the field in time of war, so that a zaim cannot send less than four nor more than twenty spahis. The number of the timariotes, however, or of those vassals who have from 6000 to 19,999 aspers annually, amounts to 52,649. These must furnish one spahi for every 3000 aspers; therefore each of them from two to six spahis. Thus the minimum of their collective quotas is 134,054 men. In 1792, it was resolved to unite all the timars with the imperial domains, after the death of the possessors; upon which the government was to support the army. The number of troops, therefore, has not changed much. Besides these troops, the Porte maintains another corps of cavalry, consisting of the former rifle makers and amorers. This kind of cavalry, called *jebeddshy*, is divided into sixty ortas, each of which, according to rule, should contain 500 men; but the number is never complete, and the ortas together never contain more than 18,000 men. Since the introduction of the European military system into Turkey, and the abolition of the janizaries (in 1826), part of the cavalry has also received another organization. Yet in many provinces, the military fiefs still remain, and are held upon the conditions above mentioned.

Zaire, or **Congo**; a river of Africa, which is supposed to rise in about lat. 10° S., and which takes a northerly course to lat. 3°, in Congo (q. v.), after which it takes a south-west direction, and runs into the Atlantic at Fathomless point; lon. 12° 20′ E.; lat. 6° S. It is less than three miles wide at the mouth, has a very impetuous current, and pours a great mass of water into the ocean. In 1816, an expedition was fitted out from England to explore this river; but the company were unable to navigate the river, either with their sloop or with boats, farther than 120 miles. Leaving their sloop, they proceeded on foot 150 miles farther; but, meeting with insuperable difficulties, they were compelled to return.—See Tuckey's *Expedition to explore the Zaire or Congo* (4to., 1818).—It has been supposed by some, that the Zaire, or Congo, is the outlet for the waters of the Niger; but the discoveries of Lander have refuted this supposition. (See *Niger*.)

Zajonczek, Joseph, prince, senator, general of infantry, viceroy of the kingdom of Poland, born, in 1752, at Kaminieck, of a noble but poor family, like other young Polish noblemen, entered the army, became, in 1784, lieutenant-colonel, in 1793 colonel and commander of a regiment. He served in the war of Poland against Russia, and was made major-general. But Poland was overcome, and Zajonczek, with many others, emigrated to France. On his way thither, he was arrested in Gallicia, together with his brother, and both were imprisoned in Josephstadt. When set at liberty, he went to Paris, and was made general of brigade in the French army in Italy. The Polish legion did great service in that war, and Zajonczek distinguished himself. He accompanied Napoleon to Egypt, and afterwards commanded a division of French troops in Italy. In 1812, he accompanied Napoleon to Russia, where he lost a leg. He then quitted the French army. In 1815, the emperor Alexander appointed him viceroy, or *namiestnik*, in Poland. In 1818, he was made a prince. Nicholas confirmed him, in 1825, in his dignities and privileges. He died at Warsaw, July 28, 1826.

Zaleucus; the lawgiver of the republic of Locris, a Greek colony in Græcia Magna. (q. v.) He lived, according to some, 500 B. C., and was a disciple of Pythagoras; according to others, he lived as early as the seventh century B. C. Only a few disconnected notices of his life and laws can be gleaned from ancient authors. His laws seem to have been very severe. In order to suppress extravagance of dress, he ordained that prostitutes alone should wear jewels and ornaments of gold. Adultery was to be punished by the loss of both eyes. The son of the lawgiver himself was convicted of this crime: the people, actuated by esteem for the father, prayed him to acquit his son; but Zaleucus remained inexorable. In order, however, to satisfy the demands of parental love, as well as the requisitions of the law, he condemned his son to lose one eye, to which he added one of his own. This is said to have had such an effect, that, as long as the lawgiver lived, no adultery was heard of in the republic of Locris. In order to maintain the authority of his laws, he ordained that every man who should propose a new law should appear with a rope round his neck, in order to be immediately strangled if the proposed law was not preferred to the existing one.

Zaluski; a Polish family, known in the literary and political history of their country.—*Andrew Stanislaus*, bishop of Cracow, died in 1758, and left his library of 20,000 volumes to the university of that city.—His brother, *Joseph Andrew*, bishop of Kiow, published the *Leges, Statuta, Consuetudines et Privilegia Regni Poloniæ* (Warsaw, 1732, fol.). His *Specimen Historicum Polonicæ Criticæ* is also much valued. He died in 1774.—A count *Joseph Zaluski*, aid-de-camp of the emperor Alexander, was made *curator* of the university of Cracow, in 1826. (See *Cracow.*)

Zambeccari, Francesco, count, celebrated as an aëronaut, was born in 1756, at Bologna, and was descended of an ancient family, one of the forty senatorial families of the city. He was carefully educated, and made great proficiency in mathematics. Having entered the Spanish naval service, Zambeccari was captured by the Turks, and carried to Constantinople, where he was put into the bagnio. His liberation was finally effected by the interposition of the Spanish ambassador; and the count made a tour in the Levant and in Africa, and afterwards visited the European capitals. He then returned to his native country, and occupied himself with the study of aëronautics. He had devised an ingenious contrivance for taking advantage of the different currents of air at different elevations, so as to give what direction he should choose to the balloon. His idea was to cause the balloon to rise or sink at pleasure by increasing or diminishing the quantity of gas, and to guide its course by oars. In 1812, he attempted to carry this project into execution, although the weather was highly unfavorable; but the balloon, having become entangled in a tree, took fire, and the unfortunate aëronaut perished, a victim to his zeal for science.

Zamoiski. Among several distinguished men of this name are, 1. *John Zamoiski* (in Latin, *Samoscius*), born in 1542, the greatest Polish statesman and scholar of his time. He studied at Paris and Padua, became chancellor of the realm and general-in-chief, and died in 1605. It was chiefly through his means that Sigismund III obtained the Polish crown. He raised an army, partly at his own expense, and defended the frontiers of the republic against the Swedes, Russians and Tartars. At the same time, he promoted the sciences by inviting foreign scholars into the country, establishing libraries, and founding learned institutions. He wrote, among other works, *De Senatu Romano* (in Grævius's *Thes. ant. Rom.* I); *De perfecto Senatore.*—2. *Andrzey Zamoiski*, high chancellor, the distinguished defender of the independence of his country, was early a military officer of signal courage and talent, subsequently a senator and high chancellor (1764). He strove to suppress the disturbances at the election of king Stanislaus Poniatowski, and afterwards resigned all his offices, because he could no longer serve his country. In 1776, he accepted the invitation of the diet to prepare a digest of the laws, in which he restored the rights of the third estate (Polish, Warsaw, 1778, 3 vols., fol.; German, by Nikisch, Warsaw, 1780). The king approved of this excellent work, but the diet would not accept it. Soon after the great political change in 1791, the count died, in January, 1792. His name was every where held in reverence. He was a philosopher in the true sense of the word, just, wise and benevolent. He gave the first example of the abolition of bondage on his estates. His wife, Constantia, a princess Czartoryska, was an uncommonly accomplished and noble woman. She died in 1797.

Zamolxis, the Getian; according to some, the slave of Pythagoras and his disciple; but, according to Herodotus, he belongs to an earlier age (Hist. iv, 94 and 96). He was esteemed in antiquity as a wise man, and one who conferred great benefits on his people. He is said to have taught them the immortality of the soul (Herodotus iv, 93), and to have given them wise laws; on which account divine honors were paid him after his death.

Zamorin. (See *Calicut.*)

Zamosc; the strongest fortress of the kingdom of Poland, in the woiwodeship of Lublin, between this place and Lemberg, in a south-eastern direction from Warsaw, on the river Wieprz; lon. 23° 15′ E.; lat. 50° 42′ N. In 1809, the Poles took it from the Austrians, and, in 1813, the Russians from the French. The place was an entailed estate of the Zamoiski family, and was built in the Italian style, by the famous general and chancellor John Zamoiski (q. v.), after he had defeated the archduke Maximilian of Austria. In 1820, the state bought the town, with the environs, from the senator count Stanislaus Kostka de Zamoiski. Zamosc was now deprived of its extensive suburbs, and changed into a fortress. The coat of arms of the Zamoiski family is still, or at least was till of late, preserved on the walls. The place contains a large palace, several other large buildings, among which is an arsenal, four churches, of which one is Greek, two convents, a theatre, &c. Population, exclusive of the garrison, 3500. There is here a gymnasium, a library, and a printing-office, all established by John Zamoiski, already mentioned.

Zampieri. (See *Dominichino.*)

Zanesville, a flourishing town and seat of justice for Muskingum county, Ohio, is situated on the east bank of Muskingum river, immediately adjoining the falls, in lat. 40° N., lon. 82° W., and seventy-four miles west from Wheeling, in Virginia, sixty north-west of Marietta, seventy north-east of Chilicothe, and fifty-eight east of Columbus. The great Cumberland road passes through this town. It contains the county buildings, and 3056 inhabitants. If the population of West Zanesville and the village of Putnam, on the opposite side of the river, are reckoned a part of it, the town may be said to have contained, in 1830, 4000 inhabitants. On the falls have been erected several mills, among which are flour and saw mills, a rolling mill, a nail factory, a woollen factory, and a steam paper mill. The town has two glass factories. Two excellent bridges cross the river.

Zanetti, Antonio Maria, count, a distinguished connoisseur, who acquired great reputation for his taste and learning, and for his talent for engraving, was born at Venice, in 1680. At the early age of fourteen, he had already executed several engravings; and, after finishing his education, he visited the different schools of Italy, and, at a later period, went to England for the purpose of examining the collection of the earl of Arundel, the finest specimens of which he copied. He expended his fortune in the collection of a cabinet of antiquities, the value of which may be estimated from the work of Gori upon the gems belonging to it—*Gemmæ Antiquæ Zanetti* (Venice, 1758, fol., with 80 plates). Zanetti likewise rediscovered the lost art of chiaro-scuro engraving, which had been invented by Carpi. (q. v.) Among the works of Zanetti, the *Lettere sulla Pittura, Scultura ed Architettura* (Rome, 1754, 7 vols., 4to.) are important, as illustrative of the history of art. He published several collections of engravings:—1. *Antiche Statue Greche e Romane che si trovano in Venezia* (fol.); 2. *Icones ex Musæo suo*, &c. (fol., with 100 plates, 1743); and, 3. *Raccolta di varie Stampe a Chiaro-scuro* (with 71 woodcuts and 30 other engravings). Zanetti died at Venice in 1766.—His nephew, *Antonio Maria*, the younger, librarian of St. Marks, in Venice, died in 1778, was also the author of several works upon art and antiquities.

Zanguebar; the name given to a large territory of Africa, bordering on the Eastern sea, including the countries of Melinda (q. v.), Magadoxo, Mongala, Jubo, Mozambique (q. v.), and some others, extending from lat. 2° N. to 21° S. The name is said to import "the coast of the negroes," all the inhabitants being blacks, with curled woolly hair.

Zanni, **Zanneschi**. (See *Harlequin*, and *Masks*.)

Zanotti, Francesco Maria, born in 1692, at Bologna, was the son of a comedian, was educated in the college of the Jesuits, in 1718 was made professor of philosophy, and librarian, in 1723 secretary, and in 1766 president of the university of Bologna. He wrote poetry in Tuscan and Latin verse; also five essays, containing rules for the different kinds of poetry. At the jubilee in Rome, in 1750, he delivered a eulogy on the fine arts, in the capitol. In a second oration, he attacked the first, and in a third refuted the second. These are distinguished for beauty of style, and deep and lofty thoughts, as are all of his philosophical and physical writings, especially his Morals and the dialogues on the pressure of bodies. His principal production is his Commentaries on the Academy, containing a history of this learned society, and an analysis of all the physico-mathematical treatises laid before it. The Memoirs of this society contain several treatises on geometrical, analytical, physical and musical subjects, written by him. In his *De Viribus Centralibus*, he explains Newton's doctrine of the central forces. A collection of his works appeared at Bologna in 1779. He died in 1777.—*Giampietro Cavazzoni Zanotti*, born at Paris in 1674, wrote several works relating to the history of the fine arts in Bologna. As secretary to the Clementine academy of painting at Bologna, he wrote *Storia dell' Accademia Clementina* (2 vols., fol., Bologna, 1739). He died in 1765.—*Eustachio Zanotti*, of Bologna, born in 1709, professor of astronomy there, died in 1782, is known by his observations on comets and the form of the earth; also by his optical and hydrometrical experiments.

Zante (anciently *Zacynthus*); one of the seven Ionian Islands, in the Mediterranean, situated to the south of Cephalonia, of irregular form, fifteen miles long, and eight broad; square miles, 160; population, 40,000. In its aspect, it is the finest of the Ionian Islands, presenting, when viewed from the fort above the town of Zante, a prospect of vales and eminences richly cultivated, covered with vineyards, olive plantations, orange, and other fruit-trees, and containing numerous hamlets or villages. The whole surface of the island presents traces of subterraneous fire, discovered in some parts by warm sulphureous springs, in others, by heat in the soil. It has springs of petroleum and mineral tar, which are productive. The climate, though very hot in summer, is not unwholesome. The chief products are currants, also olive-oil, and wine; some cotton and silk. The corn raised is hardly equal to four months' consumption. (See *Ionian Islands.*)—*Zante*, the capital of the island, has a population of 20,000 souls; lon. 21° 8′ E.; lat. 37° 50′ N. It is the largest town in the republic of the Seven Islands, pleasantly situated at the bottom of a small bay, on a hill of gentle declivity. It resembles in its appearance an Italian town. The principal street, which traverses it in its whole length, is broad and handsome, bordered with well-built houses and churches, and has a foot-pavement. The houses are partly of brick and partly of wood, and, on account of the frequency of earthquakes, seldom exceed one or two stories. The harbor is spacious; the environs extremely pleasant and picturesque. In 1820, several hundred houses were overthrown here by an earthquake. The island was in the possession of the Venetians from the end of the fourteenth to the end of the eighteenth century. In 1797, it was taken by the French, and in 1799, by the Russians. In 1815, it became one of the members of the Ionian republic.

Zanthopicrite; the name given to a crystalline substance, extracted from the bark of the zanthoxilum of the Caribbee islands.

Zappi, Giovanni Battista Felice; born at Imola, in 1667, one of the best Italian poets of his age. After having studied law at Bologna, where he made so rapid progress that the degree of doctor was conferred upon him when he was only thirteen years old, he went to Rome, where he soon distinguished himself as a poet. He was one of the founders and chief ornaments of the academy of the Arcadians. His poems are graceful, especially his *canzoni* and madrigals, but at times artificial. Clement XI gave him the hope of considerable benefices; but he died in 1719, without having obtained them. His wife, Faustina Maratti, daughter of the distinguished Roman painter Carlo Maratti, was equally distinguished for beauty and poetical talent.

Zar. (See *Czar.*)

Zarlino, Giuseppe, born in 1540 (according to Gerber, 1520), at Chioggia, near Venice, on the Adriatic sea, died in Venice in 1599. He is one of the greatest of the theoretical musicians who preceded Rameau and Rousseau. He determined more accurately the relation of the major and minor third, and, by his *Instituzioni armoniche* (Venice, 1562, 1573, folio), laid the foundation of a thorough treatment of harmony. As early as his eighteenth year, he appeared as an author, and wrote a number of works, published collectively, under the title of *Instituzioni armoniche* and *Dimostrazioni armoniche* (1589, 4 vols., folio). As a composer, he is chiefly known by a piece of music performed under his direction, as chapel-master in the St. Mark's church, Venice, at the celebration of the victory of Lepanto. Much information respecting the music of the sixteenth century is contained in his works; but his style is not attractive.

Zarskoje Seló (i. e. Sara's Village, so called from a lady who owned it when it was yet a village) is an imperial pleasure castle, twenty-five wersts (about seventeen miles) south of St. Petersburg, from which a highway leads to it through a very monotonous country. Catharine I built a castle here, which Elizabeth enlarged and embellished in 1744, and to which Catharine II, whose favorite residence it was, gave its present splendor. The large palace, three stories high, is magnificently ornamented: even the outer cornices and other ornaments are gilt; yet most of it, with the exception of what Catharine II changed or built herself, is in an old fashioned style. Among the principal objects of attention, are the great staircase; the saloon, lined with mirrors; the chapel; the porcelain room; and the amber room, in which the walls are covered from the floor to the ceiling with sculptures of amber. The rooms contain magnificent furniture and beautiful paintings. There is also a gallery of bronze figures, made by artists of the Petersburg academy. In the gardens, which are laid out in the English manner, by a German, are a hermitage, with statues and vases, Roman and Gothic temples, pyramids, several columns and obelisks, monuments, and triumphal arches, which Catharine II caused to be erected to count Romanzoff and the brothers Orloff. (q. v.) The entrance of the garden is now adorned by a colossal triumphal arch of an antique form, consisting of cast iron, with the inscription, "Sacred to my dear companions in arms," erected by the emperor Alexander, after the wars of 1812, '13 and '14. (For some more information, see Loudon's *Encyclopædia of Gardening*.) Near this palace lies the town of Sofia, with which Zarskoje Seló is at present united, and where, some years ago, a lyceum, for the education of civil officers, was erected. The palace appropriated to this lyceum was burned down in 1820.

Zauner, Francis de, was born at Feldpatan, in German Tyrol, in 1746. He early evinced a decided taste for sculpture. In 1766, he went to Vienna, where he worked for five years with professor Schletterer. He studied with great zeal; and, a proposal having been made to set up some statues at Schönbrunn (q. v.), he offered to cast them. Prince Kaunitz (q. v.) ordered him to bring within fifteen days a model for a spring, representing the three largest rivers of Austria. The model met with approbation. It was executed on a large scale; and the empress Maria Theresa took the artist into favor. Zauner received, in 1776, assistance from the government to go to Rome, where he studied for four years. In 1781, he was made professor of sculpture in Vienna. He improved the manner of studying this art in the Austrian capital, and executed a number of works; among others, the colossal statue of the emperor Joseph II, which the emperor Francis II caused to be erected, in honor of his uncle, in the Joseph square, in 1807. It is one of the largest statues in Europe. Zauner cast the statue in a manner invented by himself, which succeeded perfectly. He also executed the monument of the emperor Leopold II, in white marble, in the church of St. Augustine. There are many busts, statues and bass-reliefs by this artist. Zauner died in 1822, in Vienna.

Zea. (See *Maize.*)

Zea, Francisco Antonio, was born at Medellin, in the province of Antioquia, in New Grenada, Oct. 20, 1770. He studied at the university of Bogotá, and, at an early age, attained very distinguished academic honors there. When the government undertook to explore the vegetable riches of the country, young Zea was associated with the learned Mutis in this commission. In 1794, he was imprisoned in consequence of the freedom of his observations upon political subjects, at the same time with don Antonio Nariño and other lovers of liberty. The particular offence of which he was accused, was having participated in certain seditious meetings and compositions, tending to the independence of New Grenada. His trial lasted several years, during which he was held in confinement, first in America, and subsequently in Spain, whither the decision of the cause was transferred; and, at the expiration of that time, he was discharged, it being considered that his long imprisonment had sufficiently punished him for his imprudence. But, when restored to liberty, he was not permitted to return to America, being obliged, on various pretexts, to reside in France, with a pension of 6000 francs. In 1802, he returned to Spain, and was made adjunct director of the botanic garden of Madrid, and, in 1804, director-in-chief, and professor of natural sciences, notwithstanding his anxiety for permission to revisit his native country. The revolution of Aranjuez, which found him engaged in scientific researches, drew him into the public service. He was nominated a member of the junta of *notables*, which met at Bayonne in 1808. Afterwards he had the direction of a part of the ministry of the interior, and, finally, was prefect of Malaga until the retreat of the French army. This event enabled him to terminate his banishment. In 1814, he embarked from England, and hastened to join Bolivar in his expedition against the Spaniards of Venezuela. Thenceforth, Zea became a party to all the exertions of the struggling patriots, as the friend, the adviser, and the political guide of Bolivar. He was successively intendant-general of the liberating army, president of the congress of Angostura, and vice-president of the republic of Colombia, and, finally, envoy extraordinary and minister plenipotentiary to all those courts in Europe to which he might think proper to address himself, being invested with the whole representation of Colombia, for every species of affairs. His commission is dated Dec. 24, 1819. Zea appeared in London in 1820, invested with these unlimited powers, and, although he did not succeed in obtaining an acknowledgment of the independence of his country, yet he was every where heard with respect, and negotiated a loan for £2,000,000 sterling with a company of English bankers at Paris, March 13, 1822. The terms of the loan were, as might be expected, rather unfavorable to the new republic, and, in the sequel, drew much obloquy upon Zea. Rumors arose that his powers were defective; but a full examination proved that the report was wholly unfounded, and the loan, although censured by the Colombian congress, was recognised and confirmed. The financial embarrassments of the republic ought not to occasion any reflections upon the memory of Zea, who did every thing for the interest of his country which circumstances would permit. He died at Bath, of an aneurism of the heart, Nov. 28, 1822, aged fifty-two years.

Zea-Bermudez, don Francisco de, a Spanish statesman, had the advantage, in his youth, of the instructions of his relative, the celebrated Jovellanos (q. v.), whose writings he collected for publication, although circumstances have prevented the execution of his design. During the peninsular war, he resided in Malaga, and engaged in mercantile speculations. He was then sent, by the cortes, ambassador to St. Petersburg, where, under the authority of the regency at Cadiz, and in the name of Ferdinand VII, he concluded with the Russian chancellor, count Romanzoff, a treaty of amity and alliance (July 20, 1812), in which the emperor Alexander acknowledged the legality of the ordinary and the extraordinary cortes assembled at Cadiz, and the constitution adopted by them, and bound himself to support the Spanish government against France. This treaty is contained in Schöll, *Traités des Paix* (tenth volume), but is omitted by Martens. When, however, this constitution was revived, in 1820, count von Nesselrode addressed a note to don Zea-Bermudez, expressing Alexander's disapprobation of the revolution and the constitution. Ferdinand soon after sent Zea ambassador to the Porte; but he was recalled in 1823, and, as the Russian court signified its unwillingness to receive him as Spanish minister at St. Petersburg, he was sent to the court of St. James. In 1824, on the fall of the minister count d'Ofalia, count Zea-Bermudez was recalled, and placed at the head of the ministry. The great objects of his policy were, to moderate the violence of the apostolical party, to cover the deficit of upwards of 300,000,000 reals, to meet the requisitions of France, amounting to 58,000,000 francs, and to restore the public credit. But he found himself surrounded with difficulties. His attempts to procure a loan were unsuccessful, and the absolutists, who hated him for his moderate views, accused him of favoring the constitutionalists and the free-masons. In this emergency, the minister requested permission to retire; but the king would not consent to receive his resignation, and he continued to rise in the estimation of his sovereign, particularly after the suppression of a conspiracy of the Carlists, in August, 1825. (See *Spain*.) The severe measures now taken against the absolutists, and especially the execution of Bessières and his accomplices, who were declared royalists, for rebellion in August, exasperated the apostolical party to such a degree that the king finally yielded to the storm, and Zea-Bermudez was dismissed in October, 1825. The apostolical faction now assumed unlimited control of the administration, at the head of which was placed the duke del Infantado. (q. v.) Zea, though a man of ability, as well as of moderation and liberality, having no personal connexions, family influence or party to support him in his measures, had been forced into a vacillating policy, which was ill-adapted to restore tranquillity to the distracted country. His dismission was accounted for, by some, on the supposition that he had lost the support of the French and English governments, by not procuring the acknowledgment of the independence of the American colonies; while others, with more probability, have attributed it to his urging that measure. Zea was now sent on an embassy to the court of Dresden, and remained there till 1828, when he was appointed minister at London. In October, 1832, Ferdinand being supposed to be at the point of death, the apostolical party prematurely disclosed their design of setting aside the ordinance by which he had abrogated the Salic law, in favor of his infant daughter, and supporting don Carlos, brother of the king, as successor to the throne. In consequence of this discovery, the apostolical party were immediately removed from the high offices of the administration, and their places were filled by men of moderate and liberal principles. Zea-Bermudez was appointed minister of foreign affairs, Vives of war, Imas of finances, &c. By another decree, the university, which had been suppressed, was reëstablished. These changes give hope for the regeneration of Spain.

Zealand, or **Zeeland**; a province of the Netherlands, comprising the ancient county of Zealand and Dutch Flanders, composed chiefly of islands at the mouth of the Scheldt, namely, Schowen, Duiveland, Tholen, Walcheren, North and South Beveland, and Wolfersdyk. The continental part consists merely of a strip lying along the south bank of the Hond, or West Scheldt. The province is bounded north by the Hond, or West Scheldt, east and south by East Flanders, and west by West Flanders and the sea; population in 1829, 123,184; square miles, 625. The chief towns are Middleburg, Flushing, and Zierick-see. The surface is level, and lies so low that it is necessary to protect the country from inundation by strong dikes, which are kept up at great labor and expense. These dikes are from twenty to thirty yards in breadth at the bottom, and of sufficient width at the top for two carriages to pass abreast; yet the country has been exposed to heavy calamities from the sea's breaking over the dikes in storms. The soil is a rich, black mould, excellent for pasturage, and for the culture of madder, flax, cole-seed, &c. The exports are corn, madder, flax, salt, meat, linen yarn, rape seed and oil. The air is damp from exhalations of fresh water, productive of bilious complaints and agues. The majority of the inhabitants are Calvinists; there are, also, some Catholics, Lutherans, and Mennonists. (See *Netherlands.*)

Zealand, or **Seeland**; the largest of the Danish islands between the Cattegat and the Baltic, separated from Sweden by the Sound, and from Funen by the Great Belt; about sixty-five miles long from north to south, and sixty from east to west; square miles, 2800; population, 296,350. It has no mountains; but the surface is finely variegated, having small hills and fields of a fertile soil, intersected by canals, resembling, in some parts, in summer, when the ground is covered with vegetation, the country of Lombardy. It produces large crops of corn, and has excellent pasture. Besides several towns of considerable importance, it contains the fortress of Elsinore, or Helsingör, and the capital and royal residence, Copenhagen. (See *Denmark*, and *Copenhagen.*)

Zealand, New; two islands in the South Pacific ocean, discovered by the Dutch navigator Tasman, in 1642. He sailed along the eastern coast, and supposed it to be a part of the southern continent, then imagined to occupy these unknown regions. From the Dutch the newly-discovered country received the name of New Zealand. In 1769, Cook first discovered the strait which bears his name, and separates the two islands from each other, the northernmost of which is called Eaheinomauwe, and the southernmost Tavai-Poenamoo. They extend from 34° to 47° S. lat., and from 167° to 179° E. lon., with an area estimated at about 95,000 square miles. Lying about 300 leagues east of the eastern shore of New Holland and Van Diemen's Land, these islands have recently become the theatre of an active commerce between the New Zealanders and the British colonists in that region. During the year 1830, the total tonnage of vessels cleared out from New South Wales for New Zealand was 5888 tons; and of seventy-eight vessels cleared out from Sydney, fifty-six were for New Zealand. These voyages were undertaken chiefly for the purpose of procuring New Zealand flax; but it has also been customary for the vessels to land parties on different parts of the coast, to prosecute the whale and seal fisheries in the bays, which are frequented, at certain seasons of the year, by the black whale and the seal. Establishments have also been formed for the purpose of procuring spars for shipping, and timber for house-building; and several large vessels have been built here by English mechanics, assisted by the natives. (Busby's *Authentic Information relative to New South Wales and New Zealand*, London, 1832.) The church missionary society and the Wesleyan missionary society have both had settlements on the northern island for a number of years. The stations of the former are at the Bay of Islands and Kidee Kidee, sixteen miles from that place. About a dozen missionaries, with their families, reside here, and have established schools for the instruction of the natives. These circumstances, and the difficulties occasioned by the conduct of runaway convicts from New South Wales, have led the British government to establish an agent or resident in New Zealand. The latest accounts of New Zealand are to be found in Cruise's *Journal of ten Months' Residence in New Zealand* (London, 1823); Earle's *Nine Months' Residence in New Zealand, in* 1827 (London, 1832); and the work of Busby, above mentioned.—The fifth volume of the Library of Entertaining Knowledge, entitled the *New Zealanders*, contains a full and interesting view of the islands and their inhabitants. The language of the New Zealanders is radically the same with that spoken in Otaheite, in the Sandwich group, and in many other islands of the South sea. Its principal characteristic is the simplicity of its grammatical forms: it has no distinction of gender; declension and conjugation are effected, as in English, by particles, and superlatives are made by reduplication. A Grammar and Vocabulary of the Language of New Zealand, compiled by professor Lee of Cambridge, was published by the church missionary society, in 1820. The English alphabet is used in this work, but is much less suitable for that purpose than the Indian alphabet of Mr. Pickering (of which an account is given in our article *Writing*). The New Zealanders are, perhaps, superior in vigor of mind and in forecast to all other savages who have made so little advance in the arts of civilized life: they are remarkable for their energy and self-denial in the pursuit of distant advantages; and their discernment in appreciating the benefits of civilization is equally striking. They are also remarkable for the ferocity with which they engage in the perpetual wars that the different tribes wage with each other; for a contempt of human life, which is the natural result of a warfare that aims at the extermination or captivity of the hostile tribe; and for the revolting practice of eating the flesh of the enemies they have slain, and even of their own slaves when pressed by hunger. It has been stated, in palliation of the character of the New Zealander, that this is a superstitious observance; but those who are best acquainted with them affirm that it is also the result of a preference for that sort of food. Their chiefs are hereditary, and of different ranks, forming, with their connexions, a kind of aristocracy, the principal members of which enjoy different degrees of authority; but the power of the principal chief of the tribe is absolute; and the great body of the people are in a state of slavery, and at the entire disposal of their masters, who put them to death on the slightest occasion, or from mere caprice. The food of these islanders consists of the root of the fern (*pteris esculenta*), which grows to a large size, and in the greatest abundance, in every part of the islands, and of potatoes, which are cultivated by the slaves. Many of the chiefs also possess herds of swine, but seldom or never use the flesh of the latter as an article of food, when they can dispose of it in trading with Europeans. (Busby, p. 60.) The New Zealander does not, like some savages, despise the habits of civilized life; nor is he, like others, incapable of appreciating its advantages. The use of fire-arms has become general among these islanders, and the whale fishery is carried on in canoes manned wholly by natives. They are also acquainted with the practice of agriculture, the art of weaving, and have some musical wind instruments. The dress of both sexes is the same, and consists of an inner mat or tunic, fastened, by a girdle, round the waist, and an upper cloak, both of which are made of the native flax. They are generally tall, strong, active, and well-shaped; the hair commonly straight, and the complexion brown. The practice of tattooing is common (see *Tattooing*); and the taboo (q. v.) also prevails here, as in many of the South sea islands. Of their religious opinions we have no accurate account: they are said to have no temples, and do not appear to assemble together for purposes of worship. The face of the country is irregular and broken, presenting many lofty and steep mountains, interspersed with fertile valleys and lovely plains. Much of the land is covered by lofty trees; and where there is no wood, the prevailing plant is the fern, which rises to the height of six or seven feet. The climate is temperate, suffering from neither extreme of heat or cold: the soil is, in general, rich, as the profuse vegetation with which it is covered, and the extraordinary vigor of its productions, prove. (For an account of two of the most important vegetable productions, see *Flax, New Zealand*, and *New Zealand Spinage*.) The native land animals are not numerous: the most common is an animal resembling the fox-dog, which is sometimes eaten; the rat and bat are also found. The birds are very numerous, and almost all peculiar to the country; and the shores abound with fish. (See *Australia*.)

Zealots, among the Jews; those who were zealous for the honor of God and his temple, and not unfrequently went so far that they stoned, or otherwise destroyed, supposed blasphemers, or Sabbath-breakers.

Zebra. (See *Horse*.)

Zecchin (in Italian, *zechino*, from *zecca*, the mint where the money is coined); the gold coin of the former republic of Venice. Certain gold coins of other countries, such as the papal dominions, some other Italian states, and Turkey, are also called *zecchins*. The Florentine *zecchins* are called *gigliati*, from the lilies of the grand-ducal arms impressed on them; and the Austrian *zecchins*, or ducats, particularly those of Cremnitz (q. v.), are called, in Italy, *ungheri*. The Venetian *zecchins* were equal to the Hungarian ducats in actual value, but stood from four to five per cent. higher in Venice. The Italian ducat, a silver coin, is to be distinguished from the *zecchin*. Gold ducats are rarely coined in Italy.

Zechariah, or **Zachariah**; one of the twelve minor prophets, of whose history little is known. We are ignorant both of the time and the place of his birth. He is called the son of Barachiah, and was commissioned by God to exhort the Jews to undertake the restoration of the temple. Like the other prophets, he also preaches moral reformation. His obscurity has much embarrassed his numerous commentators.

Zeeland. (See *Zealand.*)

Zegedin, or **Szegedin**; a royal free town of Hungary, in Csongrad, near the conflux of the rivers Maros and Theisse; 60 miles north-west of Temesvar, 68 north of Belgrade; lon. 9° 56′ E.; lat. 46° 15′ N.; population, 32,000; houses, 3800. It is surrounded by a mound and moat, has a brick fort, is one of the most considerable towns in Hungary, and contains a college of the monks called Piarists, a Catholic gymnasium, a small philosophical seminary, a monastery of Minorites, and several Catholic and Greek churches. It has some manufactures of woollens, leather and toys. Its commercial intercourse is considerable, its position, at the junction of two navigable rivers, giving it the command of an extensive water carriage. The exports consist chiefly of corn, cattle, wool, tobacco and timber.

Zeisberger, David, a missionary among the Indians, distinguished by his zeal in religious labors, and by the services which he has rendered to general philology, was born in Moravia, a province of Austria, whence he emigrated, when young, with his parents, to Herrnhut (q. v.), in Upper Lusatia, for the sake of obtaining religious liberty. In 1738, he went to America, and landed in Georgia, where, at that time, some of the United Brethren (q. v.) had begun a settlement for the purpose of preaching the gospel to the Creek nation. Thence he removed to Pennsylvania, and assisted at the commencement of the settlements of Bethlehem and Nazareth. From 1746 to his death, which took place Nov. 17, 1808 (when he was eighty-seven years and seven months old), a period of sixty-two years, he was, with very few and short intervals, a missionary among the Indians, and made himself master of several of their languages. Those Indians among whom he lived loved him, and often referred decisions, even respecting disputes among different tribes, to him. He received no salary, wanting nothing but food and clothing, and liberty to preach the gospel. He was one of the oldest white settlers in the state of Ohio, and there, and in Upper Canada, dwelt with the Indians, who had given him the name of *Anausseracheri* (signifying *On-the-pumpkin*), with whom he endured the greatest hardships. He was chiefly acquainted with two Indian languages, the Onondago (one of the idioms of the Six Nations) and the Delaware, but understood other languages connected with them. In the Onondago he completed, about the year 1768, two grammars, one written in English and the other in German, and a copious dictionary (German and Indian), containing upwards of one thousand seven hundred pages. In the language of the Lenape (or Delaware), he published, in the year 1776, his first edition of a spelling-book, and, in 1806, his second edition, enlarged. Two other books were published by him in this language, the one sermons to children, and the other a hymn-book, containing about three hundred sixty pages, and upwards of five hundred hymns, translated partly from the English, partly from the German. He left, in manuscript, a grammar of the Delaware language, written in German, which has been translated into English for the American Philosophical Society of Philadelphia, by Mr. Duponceau, and which the distinguished and learned translator pronounces to be the most complete grammar that we have ever had of any one of those languages which are called barbarous (see *Indian Languages*, Appendix to vol. vi); and also a translation into Delaware of the Harmony of the Four Gospels. Mr. Zeisberger's works are so important to the students of the particular dialects which he had learned, and afford so valuable materials to the general philologist, that we think it proper to add the titles of them, as they are enumerated in the Catalogue annexed to Mr. Duponceau's Report to the American Philosophical Society, in whose library they are deposited: *Deutsch und Onondagoisches Wörterbuch*; a Dictionary of the German and Onondago Languages (7 vols., 4to., MS.); a Grammar of the Lenni Lenape or Delaware Language (translated from the German MS. of the author by P. S. Duponceau, since published in the Transactions of the Philosophical Society at Philadelphia); Essay of an Onondago Grammar, or a short Introduction to learn the Onondago, alias Maqua, Tongue (4to., 67 pp., MS.); *Onondagoische Grammatik* (4to., 87 pp., MS.); another Onondago Grammar (in the German language, 4to., 176 pp., MS.) See a *Narrative of the Mission of the United Brethren among the Delaware and Mohegan Indians, from its Commencement, in* 1740, *to* 1808, by John Heckewelder (q. v.) (Philadelphia, 1820).

Zeist. (See *Zeyst.*)

Zeitz; formerly a Saxon city, but since 1815, has belonged to Prussia. It is about twenty-three miles distant from Leipsic, on the right bank of the White

Elster, on a high mountain, contains 7000 inhabitants, manufactories of cloth, leather, &c. The town is very old, has four churches, and a gymnasium, a house of correction, an institution for the reformation of juvenile offenders, a good library with 12,000 volumes and many manuscripts. The former bishopric of Zeitz was founded by the emperor Otho I, in 968, in order to promote the conversion of the Wends (q. v.) to Christianity. In 1029, the bishops transferred their see to Naumburg.

Zelle, or **Celle**; a city of Hanover, in Luneburg, 128 miles west of Berlin; lon. 10° 14′ E.; lat. 53° 42′ N.; population, including the suburbs, 9729. It contains five churches, two hospitals, a gymnasium, an orphan-house, a lunatic hospital, a school of surgery, a society of agriculture, &c. It is fortified, and tolerably built, situated on the Aller, which is here navigable, and, behind the New Town, is joined by the Fuhsee, and has some trade and manufactures. It contains the courts of appeal for the Hanoverian territory at large. It was formerly the capital of a duchy belonging to the house of Brunswick.

Zelter, Charles Frederic, professor and director of the singing academy in Berlin, a man of much musical talent, was born in 1758, in Berlin. In his seventeenth year, he began to learn the trade of his father, a mason. All his leisure, however, was given to music. Bach's and Hasse's works first made him acquainted with the rules of scientific composition. At last his father forbade him the study of music altogether, because he neglected his trade. In 1783, he became a master mason. Being now independent, he became an active member of the singing academy above mentioned, of which he was made director in 1800. In 1809, he was made professor of music in the Berlin academy of arts and sciences, and founded the first *Liedertafel* (glee club) in Berlin. From this glee club numerous others proceeded in Germany, to which the amateurs of music are indebted for many beautiful tunes and songs. He composed many glees for this club. He also composed other music; but his glees and motetts (q. v.) are his best productions. He has done much towards improving vocal music in Berlin, a city perhaps superior to any in respect to the general diffusion of fine singing. Died '32.

Zemlin. (See *Semlin.*)

Zemzem. (See *Mecca.*)

Zend-Avesta (*Living Word*) is the name of the sacred books which the descendants of the ancient Persians, the Guebers (q. v.) in Persia, and the Parsees in India, assert that they received, more than four thousand years ago, from their lawgiver, and the founder of their religion, Zoroaster (q. v.), or Zerdusht. English and French travellers, at an early period, gave some information respecting the religion of the Guebers and their sacred books. Anquetil du Perron (q. v.) learned, during his residence in India, the sacred language in which those books are written, brought copies of them to Europe in 1762, and published, in 1771, a French translation of the *Zend-Avesta*. English and German scholars soon raised doubts respecting the genuineness and antiquity of these writings, which occasioned disputes. Even the fire-worshippers (q. v.) themselves are said to have admitted that the real *Zend-Avesta* has long been lost. Their present books are said to be legends of the middle ages, and the religion of the present Guebers a mixture of ancient Greek, Christian, and perhaps even Mohammedan notions. Rask (q. v.), however, in his treatise On the Age and Genuineness of the Zend Language and of the Zend-Avesta (translated into German by Hagen; Berlin, 1826), maintains the genuineness of the *Zend-Avesta*, at least of some parts; but who is the author he does not decide. The *Zend-Avesta* consists of five books, written in the Zend language. A part of it was revealed to Zoroaster by Ormuzd, the highest among good beings. They treat of Ormuzd, and of the antagonist principle of evil, Ahriman; also of the genii of heaven (the angels), the rewards and punishments of a future state, &c., and are read aloud during religious service. Another part consists of a collection of prayers, glorifications of the most important genii, moral sentiments, &c. These are by various authors, and written in various dialects. There are also historical and geographical notices contained in these books, which, however, seem to be capable of various interpretations. Respecting the contents of the Zend writings, see Rhodes's work, *The Sacred Traditions and the complete Religious System of the ancient Bactrians, Medians and Persians, or of the Zend People* (Frankfort on the Maine, 1820). The great work of M. Burnouf, secretary of the Asiatic society in Paris, will throw light on this subject. (See *Burnouf*, Appendix to this volume.)

Zenith; an Arabic word, used in astronomy to denote the vertical point of the heavens, or that point of the heavens directly over the head of the observer. Each point on the surface of the earth has therefore its corresponding zenith. The zenith is called the "pole of the horizon," as it is 90° distant from every point of that circle. (See *Nadir.*)—The *zenith distance* of a heavenly body is the arc intercepted between the body and the zenith, being the same as the co-altitude of the body.

Zeno; a name which often appears in ancient history. Two philosophers of this name are particularly celebrated:—1. Zeno, the Eleatic, of Elea, or Velia, a Greek colony in Magna Græcia, lived about the eightieth Olympiad (about 450 B. C.), at which time he went with Parmenides to Athens. He was a disciple of the Eleatic school, founded by Xenophanes. (q. v.) To him is ascribed the invention, or at least the developement, of dialectics, of which he made use with much acuteness for the defence of the Eleatic system. Of his writings, nothing has come down to us. According to Aristotle, he taught that there is only one being, which is God; that in nature there is no vacuum, and that motion is impossible. Seneca even asserts that he carried his scepticism so far as to deny the existence of external objects. He is represented as a man of noble spirit, full of vigor and patriotism. Failing in his attempt to deliver Elea from the tyrant Nearchus, he calmly endured the torture, and at length bit off his own tongue, in order to prevent himself from betraying his companions. It is said that he was at last pounded in a mortar; and that, in the midst of his torments, he called Nearchus to him, as if he wished to reveal something of importance. The tyrant approached, and Zeno, pretending to whisper, caught his ear with his teeth, and bit it off.

2. *Zeno*, the founder of the Stoic sect, was born at Cittium, a maritime town of Cyprus, about 366 B. C. His father was a merchant, who occasionally visited Athens, where he purchased many of the writings of the Socratic philosophers for his son, who early displayed a great propensity for learning. When he became a man, he visited Athens himself, where he became the disciple of the Cynic philosopher Crates; but, wishing to extend the sphere of his knowledge beyond the narrow limits of a sect which prided itself in a contempt for all science, he forsook Crates for Stilpo, and various other masters, finishing his course of study in the school of Polemon, who detected his purpose of selecting materials for the formation of a sect of his own. The design he ultimately carried into execution, in a place called the *painted porch*, from its being adorned with the pictures of Polygnotus, and other eminent painters, and more generally the Stoa, or porch, whence all his followers acquired the name of *Stoics*. Zeno obtained great fame by the acuteness of his reasonings; and, his private character being also highly respectable, he was much beloved and esteemed by his numerous disciples, and even by the great. The Athenians placed so much confidence in his integrity, that they deposited the keys of their citadel in his hands, and decreed him a golden crown and a statue. He is said to have come rich into Greece, but he lived with great simplicity and abstemiousness; and the modesty of his disposition led him to shun crowds and personal distinctions. He reached the advanced age of ninety-eight, when, hurting one of his fingers in a fall, he interpreted the accident into a warning to depart, and, repeating from the tragedy of Niobe, "Here I am; why do you call me?" went home and strangled himself, on the principle that a man was at liberty to part with life whenever he deemed it eligible to do so. The Athenians honored him with a public funeral and a tomb, with an inscription recording his services to youth, by his rigid inculcation of virtuous principles and good conduct. His death is dated in the first year of the 129th Olympiad (B. C. 263). As the founder of a new school, he seems rather to have invented new terms than new doctrines, and agreed in many points with his masters of the Platonic sect. In morals, he followed the principles of the Cynics, freed of their practical indecencies, which induced Juvenal to observe that the two sects only differed in the tunic. (For an account of his philosophy, see *Stoics.*)

Zeno, Nicholas and Anthony; two celebrated Venetian navigators of the fourteenth century, to whom the discovery of America, prior to the voyage of Columbus, has been attributed. The story is as follows: Nicholas having set sail in a ship equipped at his own cost, on a voyage to Flanders and England (about 1388), was driven by a storm upon an island called by the inhabitants Friseland, which geographers suppose to have been one of the Faroe islands. Here he was kindly received by a prince of some neighboring islands, called Porland, who was then meditating the conquest of Friseland. Having aided that prince in conquering this and other northern islands, Nicholas Zeno sent for his brother Anthony, who joined him there in 1391 or 1392. The former died about 1395; but the latter remained in the country till about 1405, when he returned to Venice. During their residence in Friseland, their attention was attracted by the report of a fisherman concerning some land about 1000 miles west of Friseland, inhabited by people living in cities, acquainted with the mechanical arts, and possessing some Latin books, which, however, they did not understand. While in that country, which he said was called *Estotiland*, the same person declared that he went, in a fleet fitted out by the prince of Estotiland, to a country to the south, called *Drogeo*, the inhabitants of which were naked and barbarous, though, far to the south-west, there was another civilized country, where the people had great abundance of gold and silver, and in their temples sacrificed human victims. This account determined the prince to send an expedition thither under Anthony Zeno, which, however, returned, after discovering the island of Icaria, and visiting Greenland, without accomplishing the objects of the voyage. The relation and letters of the brothers Zeni, and the map of the country mentioned in them, remained in the family archives a century and a half, when they were published by Marcolini, under the title of the Discovery of the Isles of Friseland, Esland, Engroveland, Estotiland and Icaria (Venice, 1588). This work is given in the second volume of Ramusio's collection, and in the third volume of Hakluyt, and has excited much discussion among geographical writers, such as Ortelius, Mercator, Forster, Malte-Brun, &c. The latter considers Estotiland to be Newfoundland, Drogeo, Nova Scotia or New England, and the civilized people to the south, the Mexicans, or some ancient nation of Florida or Louisiana. Irving (*Life of Columbus*, appendix, No. xiii) remarks that, although the brothers Zeni probably visited Greenland, the rest of the story resembles the fables circulated shortly after the discovery of Columbus, to arrogate to other nations and individuals the credit of the achievement.—See, further, Daru's *Histoire de Venise* (vol. i, b. 40).—At all events, it is evident that Columbus had no knowledge of these accounts, as he sailed under the expectation of finding land to the west, and not to the north.

Zeno, Apostolo, an eminent Italian man of letters, was born at Venice, in 1668. He was the son of a physician in that city, who was a descendant from a noble family long settled in the island of Candia. He was educated in a seminary of religion at Castelli, but principally cultivated polite literature, and the study of Italian history and antiquities. He first acquired celebrity by his melo-dramas—a species of poetry then much in vogue in Italy. In 1696, he instituted at Venice the academy Degli Animosi, and was the editor of the *Giornale de' Letterati d'Italia*, of which he published thirty-eight volumes between the years 1710 and 1719, and which still maintains its reputation. His first musical drama, *L'Inganni Felice*, was performed at Venice in 1695; and between that time and his quitting Vienna, to which he was invited by Charles VI, in 1718, who made him both his poet and historian, he produced forty-six operas and seventeen oratorios. He continued eleven years in the imperial service, at the expiration of which he obtained his dismission from the emperor, his personal friend, who allowed him to retain his salary on condition of furnishing annually a drama for music; which he continued to do until the appointment of Metastasio. On his return to Venice, he lived in literary leisure until his death, Nov. 11, 1750, a few months before which he gave his valuable library and collection of coins to the Dominicans. Zeno was of much service to the musical poetry of the Italians, especially the opera, to which he gave a more regular form. (See *Opera*, and *Italian Poetry*.) But his labors as a biographer and historian are of more importance. These include his notes to Fontanini's *Biblioteca della Eloquenza Italiana*, his *Dissertazioni Vossiane*, his additions to Foresti's *Mappamondo Istorico*, and his biographies of Sabellico, Guarini, Davila, and the three Manutiuses. He also aided the labors of others, as Muratori. The dramatic works of Zeno were published at Venice in 1744 (10 vols., 8vo.). They rank not very high as poetical compositions; but he is the first Italian poet who gave his countrymen good rules for tragedy, and freed it from the intermixture of low buffoonery, with which the Italian serious drama was before infected. His letters, which were published in 1752 (3 vols., 8vo.), contain much sound criticism, and many notices of the literary history of his time.

Zenobia, queen of Palmyra, claimed

her descent from the Macedonian kings of Egypt. She was instructed in the sciences by the celebrated Longinus, and made such progress that, besides her native tongue, she spoke the Latin, Greek and Syrian languages. She also patronised learned men, and herself formed an epitome of Egyptian history. She was married to Odenatus, king of Palmyra, and accompanied him both in the war and the chase; and the success of his military expedition against the Persians is, in a great degree, attributed to her prudence and courage. Gallienus, in return for services which tended to preserve the East to the Romans after the capture of Valerian by Sapor, king of Persia, declared Odenatus emperor; on whose death, in 267, she assumed the sovereignty, under the title of queen of the East. She preserved the provinces which had been ruled by Odenatus, and was preparing to make other conquests, when the succession of Aurelian to the purple led to a remarkable change of fortune. That martial prince, disgusted at the usurpation of the richest provinces of the East by a female, determined to make war upon her; and, having gained two battles, besieged her in Palmyra, where she defended herself with great bravery. At length, finding that the city would be obliged to surrender, she quitted it privately; but the emperor, having notice of her escape, caused her to be pursued with such diligence that she was overtaken just as she got into a boat to cross the Euphrates. Aurelian spared her life, but made her serve to grace his triumph. The Roman soldiers demanded her life; and, according to Zosimus, she purchased her safety by sacrificing her ministers, among whom was the distinguished Longinus. She was allowed to pass the remainder of her life as a Roman matron; and her daughters were married, by Aurelian, into families of distinction. Her only surviving son retired into Armenia, where the emperor bestowed on him a small principality.

Zentner, George Frederic, baron von, Bavarian minister of justice, was born in 1752, in humble life, at Strassenheim, in the Palatinate, studied at Metz, Göttingen and Wetzlar, and was made professor of law in the university of Heidelberg, where he began to lecture, in 1779, with much success. At a later period, he was attached to the legation of the Bavarian Palatinate, at the congress of Rastadt (q. v.), and, in 1799, was invited to Munich as privy counsellor. From him originated the two ordinances of 1799 and 1802, for the improvement of education in Bavaria, which have had such success that the Bavarian system makes an epoch in the history of education. In 1819, he was raised to the rank of nobility. In 1820, he was made minister, and, in 1823, minister of justice. The Bavarian constitution is almost entirely his work.

Zeolite (*mesotype, natrolite, skolezite*) occurs in delicate crystals, whose primary form is the right rhombic prism of 91° 20′; hardness about that of apatite; specific gravity 2.2; cleavage parallel to the lateral planes of the primary form; color white, or grayish-white; crystals translucent or transparent. It is also found massive, in radiating masses. Before the blow-pipe, on charcoal, it becomes opaque, and then vitrifies without intumescence. It is composed, according to Vauquelin, of

Silex,	50.34
Alumine,	29.30
Lime,	9.46
Water,	10.00

Analysis by Gehlen:—

Silex,	54.46
Alumine,	19.70
Lime,	1.61
Soda,	15.09
Water,	9.83

Zeolite is found in trap and lava. The finest specimens occur in Iceland, Tyrol, and the Faroe islands. It has also been met with, in small quantity, at several places in the U. States.

Zephyr; a soft, cool, agreeable wind; in Greece, the west, or rather west-southwest wind. The Greek name, according to the etymology, signifies *life-bringing*, because, at the time when this wind begins to blow, the plants are restored to life by the balmy spring air.—Zephyrus, according to the Grecian mythology, as well as that of the Romans, was one of the inferior deities—a son of Æolus, or of Astræus and of Aurora, a lover of Chloris or Flora. By the harpy Podarge, he was the sire of the swift horses of Achilles, Xanthos and Balios. His love being rejected by Hyacinthus, he was the cause of his death by blowing Apollo's quoit against his head. Some make him the husband of one of the Hours. Flowers and fruits are under his protection. He is represented as a gentle, beautiful youth, naked, with a wreath on his head, or flowers in the fold of his mantle.

Zerbst, or **Anhalt-Zerbst**, formerly a small German principality, which, in 1793, on the extinction of the branch of the house of Anhalt in possession of it, was divided between the three other branches of that house. (See *Anhalt.*) Zerbst, the capital, sixty-five miles southwest of Berlin, now belongs to the duchy of Anhalt-Dessau. It is situated on the small river Neithe, near the Elbe, and has a population of 8000 souls: the palace of the former princes is outside of the walls. Brewing forms a main branch of its industry, and the Zerbst beer is famous. Ornamental manufactures in gold, silver and jewellery are also carried on here.

Zerdusht. (See *Zoroaster.*)

Zerenner, Charles Christopher Theophilus, director of the seminary for school-masters in Magdeburg, and superintendent of the schools in that city, was born in 1780, at Beiendorf, near Magdeburg, where his father was a clergyman. He studied theology at Halle, and in 1802 became a teacher, in 1805 a minister in Magdeburg, and in 1823 director of the seminary for school-masters (see *Schools*) in that city. In 1819, a reform was commenced in the schools of that place, which has raised them to a degree of excellence that has attracted the attention even of foreign countries. It is, in a great degree, the work of Zerenner, and is described in his Brief Account of the newly-organized School System in Magdeburg (1820—21), and more fully in the first number of volume first of his Annals for Popular Schools, which has also appeared under the title of the School System of the City of Magdeburg (Magdeburg, 1825). He also founded a fund for the support of the widows of school-masters. In 1825, there were eighty-two students in his seminary above mentioned. Zerenner is also the author of many works on education, and for the purposes of education, which have met with much and deserved success.

Zethes, Zetes, or Zetus; a son of Boreas, king of Thrace, and Orithyia, who accompanied, with his brother Calais, the Argonauts to Colchis. In Bithynia, the two brothers, who are represented with wings, delivered Phineus from the continual persecution of the harpies, and drove these monsters as far as the island called Strophades, where, at last, they were stopped by Iris, who promised them that Phineus should no longer be tormented by them. They were both killed, as some say, by Hercules, during the Argonautic expedition, and were changed into those winds which generally blow before the dog-star appears, and are called Podromi by the Greeks. Their sister Cleopatra married Phineus, king of Bithynia.

Zethus. (See *Amphion.*)

Zetoun, or Zeitoun, Gulf of (anciently *Malaic gulf*), is a gulf or bay on the eastern coast of Greece, north-west of the island of Negropont, or Eubœa. By the protocol of February, 1830, the northern boundary of Greece, beginning at the mouth of the Aspropotamus, terminated at the gulf of Zetoun. But, on the 21st of July, 1832, the sultan signed a protocol, assenting to the extension of the frontier, as desired by the London conference, namely, from the gulf of Volo to the gulf of Arta.

Zeus. (See *Jupiter.*)

Zeuxis; a celebrated painter, who is said to have begun to practise his art in the fourth year of the ninety-fifth Olympiad (B. C. 397). He was a native of Heraclea, in Magna Græcia, and a pupil of Apollodorus. He is said, by Quintilian, to have been the first who understood the management of light and shade; but, at the same time, he was thought to have given too much of bulk and massiveness to the human figure. He stood extremely high in his profession, excelled all his predecessors, and many stories are told of the fidelity with which he copied nature. One of his most famous pictures was a Helen, which he executed for the Crotonians (according to some, for Agrigentum), as an ornament for their temple of Juno. This figure was celebrated by the poets and amateurs of antiquity, as the finest specimen of art existing; and the artist himself, who was very vain and ostentatious, inscribed under it the lines of Homer, in which Priam speaks his admiration of the beauty of Helen. As models, he had selected five beautiful girls. He became very rich, and, at length, gave his pictures away, affecting to regard them as above all price. One of his finest performances, a Hercules strangling some Serpents in his Cradle, with Alcmena and Amphitryon looking on in terror, was presented to the Agrigentines. Of the circumstances of his private life, little is known; nor is it recorded how long he lived. Tradition, most likely erroneously, attributes his death to a very whimsical cause. It is said, that, having painted an old woman, on attentively surveying his work, he was seized with so violent a fit of laughter that he died on the spot. His contest with Parrhasius is well known. Zeuxis painted some grapes so naturally that birds flew to peck them. Parrhasius painted a curtain so naturally as to deceive Zeuxis himself, who asked to have it drawn aside, and, on learning the deception, acknowledged himself vanquished, as he had only deceived birds, while Parrhasius had deceived an artist. At another time, he painted a boy with grapes, at which the birds again flew. "If," said he, "the boy had been painted as well as the grapes, the birds would not have approached."

Zeyd. (See *Seyd.*)

Zeyst, or **Zeist**; a village of above 1200 inhabitants, with a fine castle, in the province of Utrecht, in the Netherlands, a league from the city of Utrecht, in an agreeable country containing many gardens and walks. It formerly belonged to the counts of Nassau, and was sold, in 1752, to a merchant in Amsterdam, who gave it to the Moravian Brethren for the establishment of a settlement, which at present consists of 300 members. They have built here brother and sister houses, and manufactories, where they make gloves, leather, ribands, gold and silver work, soap, candles, &c., of excellent quality. Not far from Zeyst there is a heath, where the French-Dutch army raised a pyramid of earth a hundred and forty-eight feet high, on the occasion of Napoleon's assuming the crown.

Zia. (See *Zea.*)

Ziegenbalg, Bartholomew, a celebrated Protestant missionary, was born at Pullnitz, in Upper Lusatia, June 14, 1683. Having gone through the usual course of school education at Gorlitz and Berlin, he removed, in 1703, to the university of Halle, where he applied himself closely to biblical literature. About this time, the king of Denmark being desirous of sending some qualified missionary to India, Ziegenbalg was particularly recommended to him; and, in 1705, he was ordained at Copenhagen for that purpose. He sailed to India the same year, and arrived at Tranquebar, in July, 1706, but met with great opposition on the part of the Danish authorities, who, for a short time, even confined him; nor was he allowed to proceed in a translation of the New Testament into the Malabar language, which he had commenced. Orders, however, arriving from Copenhagen for the Danish authorities to protect the missionaries, and also receiving great pecuniary assistance from England and Germany, he was enabled, in 1711, to make a voyage to Madras, and also to visit the territories of the Mogul. In October, 1714, he sailed for Europe, and reached Copenhagen in the following year. He was received with great respect, and, after completing a dictionary of the Malabar language, which was printed at Halle in 1716, quarto, he visited England, where he obtained an audience of George I, and the members of the royal family, and obtained a passage to India by the direct countenance of the East India company. He accordingly embarked at Deal, in March, 1716, and arrived at Madras the following August, whence he proceeded to Tranquebar, and resumed his functions. Inspirited by the encouragement which he had met with in Europe, in 1718, he took an extensive journey by land, and was fulfilling the object of his mission with great zeal and success, when he was attacked by the cholera morbus, and died Feb. 23, 1719, in the thirty-sixth year of his age. He was the author of some accounts in German of the particulars of his mission; of *Grammatica Damulica* (Halle, 1716, 4to.); *Brevis Delineatio Missionis Operis* (1717); *Explicatio Doctrinæ Christianæ Damulicæ* (1719, 8vo.); *Biblia Damulica* (1723). In some of these works he was assisted by his brother missionaries Grundler and Schultz.

Zieten. (See *Ziethen.*)

Ziethen, Hans Joachim von, Prussian general of cavalry, knight of the order of the black eagle, &c., one of the most distinguished generals of Frederic the Great in the seven years' war, was born in 1699, at Wustrau, a village in the county of Rappin, in Brandenburg, and began his military career when fourteen years old. After some time, he left the service, but returned to it in 1726, and was appointed lieutenant. A quarrel with his captain occasioned his imprisonment for a year. A duel in which he was engaged, soon after his release, caused his dismission from his corps. In 1730, however, he was again taken into the service. In 1731, he was made captain of cavalry, and, in 1735, made his first campaign against France. In 1736, he was made major, and, in the course of the first Silesian war (q. v.), lieutenant-colonel. A few days after, he came near taking his former teacher, general Baronay, prisoner, upon which Frederic made him colonel, and gave him a regiment of hussars. In the campaign of 1742, he approached very near Vienna, with a corps of 15,000 men. When the second Silesian war broke out, in 1744, Ziethen was made major-general. He distinguished himself greatly in many engagements, and, on one occasion, marched through the Austrian army, having ordered his soldiers to turn their cloaks inside out, so that the white lining looked like the Austrian uniform. He was wounded, Nov. 23, at Catholic Hennersdorf. His enemies succeeded in making Frederic ill disposed towards him; but he became reconciled to him shortly before the breaking out of the third Silesian war. The reconciliation took place in a manner which is creditable to Frederic. Ziethen was very active in the course of that war, and greatly distinguished himself. At Kollin he was wounded. At Leuthen he broke the path to victory. At Liegnitz he was made general of cavalry on the field of battle. The battle at Torgau was decided by him, though he received undeserved censure from Frederic. Soon after the peace of Hubertsburg, in 1763, he married a second time, when sixty-five years old; and the first son of this union was made a cornet in the cradle by Frederic. Frederic gave him many and repeated marks of his favor. Though seventy-nine years old, he wished to take part in the Bavarian war of succession; but Frederic declined his repeated offers. Ziethen was a man of a noble and frank spirit, and a favorite with the whole nation. He died in 1786, in Berlin. His life was written by L. J. Leopoldina von Blumenhagen (Berlin, 1800).

Zigeth. (See *Szigeth.*)

Zimarra. (See *Masks.*)

Zimmer, Patricius Benedict, a Catholic theologian, born at Abtsgemünd, Feb. 22, 1752, studied at Ellwangen and Dillingen, received orders in 1775, and was made, in 1783, professor of dogmatics in the university at Dillingen. In 1795, he was dismissed for reasons not assigned, and became pastor at Steinheim; in 1799, was appointed professor of dogmatics at Ingolstadt, and, in 1800, was transferred to the university of Landshut; in 1806, was dismissed, probably for favoring the philosophy of identity, so called; but, after six months, was appointed professor of archæology and exegesis. In 1819 and 1820, while rector of the university, he was elected deputy of the second chamber of Bavaria, where he was chairman of the committee on the laws. He died in 1820. Among his theological writings are *Diss. de vera et completa Potestate ecclesiastica illiusque Subjecti* (Dillingen, 1784); *Theologiæ Christianæ theoreticæ Systema eo Nexu atque Ordine delineatum, quo omnium optime tradi explanarique posse videtur* (part i, ibid., 1787); *Veritas Christ. Relig., seu Theol. Christ. dogmaticæ* (parts i and ii, Augsburg, 1789—1790); *Fides Existentis Dei, sive de Origine hujus Fidei, unde ea derivari possit et debeat criticum Examen*, &c. (1791). Among his philosophical works are Philosophical Doctrine of Religion (1 vol.); Doctrine of the Idea of the Absolute (1805); Philosophical Inquiries respecting the general Degeneracy of Mankind (3 vols., 1809). The three last are in German.

Zimmermann, John George, chevalier von, an eminent physician and miscellaneous writer, was born in 1728, at Brug, in the canton of Berne, of which his father was a senator. After receiving a regular education, he made choice of the medical profession, and repaired to the university of Göttingen, where he studied under Haller, a relation of whom he subsequently married, and soon after was appointed public physician to his native town of Brug. In this retired situation, he employed his leisure in the publication of pieces both in prose and verse, and, among others, the first sketch of his popular work On Solitude. This was followed by his essay On National Pride, which passed through several editions, and was translated into various foreign languages. In 1763, he composed his work On the Experience of Medicine, which he followed up by several other professional treatises; in consequence of which he received an offer of the post of physician to the king of England for Hanover, which he accepted, and removed, in 1768, to that capital. His work On Solitude was published in four volumes, octavo. In 1786, he attended Frederic in his last illness, which afforded little room for medical skill, but enabled him to publish an account of his conversations with that celebrated sovereign; e. g. On Frederic the Great, and my Conversation with him shortly before his Death (Leipsic, 1788), and Fragments on Frederic the Great—works which did not increase his reputation. He also undertook a defence of that prince from the censures of Mirabeau, which writings exposed him to severe criticism. His mind was further disquieted by the part which he took in the controversies which arose out of the discussions that led to the French revolution. Attached by court habits and birth to the cause of royalty and aristocracy, he viewed with extreme jealousy every thing which exhibited the slightest tendency to affect them. He even proceeded so far as to address a memoir to the emperor Leopold, recommending the suppression of certain societies, of which he disapproved, by the hand of power, and involved himself in a prosecution for libel, for a charge which he brought against the baron de Knigge, for an unavowed publication. While his mind was in a state of agitation from these causes, the approach of the French towards Hanover, in 1794, almost subverted his reason. He could think of nothing but the pillage of his house and ruin of his fortune, and, under this morbid irritation, wasted to a skeleton, and died, absolutely worn out, in 1795, at the age of sixty. Most of his works have been translated into English; and his Solitude was, at one time, very popular. His writings towards the end of his life almost destroyed the reputation which he had earned at an earlier period.

Zimmermann, Eberhard Augustus William von, a German writer of note in the departments of geography, ethnography, anthropology and zoölogy, was born, in 1743, at Uelzen, near Celle, in Hanover. He studied at Göttingen, where he wrote on the analysis of curves, and at Leyden, where he conceived the idea of dividing the animal kingdom with reference to climates, and of directing his attention to the migrations and the ramifications of the races, beginning with man himself—an idea which he kept in view in all his travels and in his writings. He visited England, Italy, France, also Russia and Sweden. To England he went three times, and published in London, in 1788, a Political Survey of the present State of Europe, with sixteen statistical tables. In 1797, he published General Observations on Italy, also a treatise on the Molfetta in Apulia. His Geographical Annals were continued for three years. In 1795 appeared his France and the Free States of North America, and, at a later period, his General View of France, from Francis I to Louis XVI, and of the Free States of North America (1800, 2 vols.). In 1766, he had been appointed professor of natural philosophy in the Caroline college at Brunswick. The emperor Leopold raised him to the rank of nobility for his writings against the spirit of the revolution. His most important work is his Geographical Pocket-book, which appeared in twelve annual numbers, from 1802 to 1813, and describes, in an agreeable manner, a great part of the earth. A sort of abridgment appeared under the title the Earth and its Inhabitants, according to the latest Discoveries, in five volumes. In 1779, he wrote on the compressibility and elasticity of water. He died in 1815.

Zinc is a metal of a bluish-white color, somewhat brighter than lead, of considerable hardness, and so malleable as not to be broken with the hammer, though incapable of much extension in this way. At a temperature between 212° and 300° Fahr., it is both malleable and ductile. Its specific gravity is from 6.9 to 7.2. When broken by bending, its texture is seen to be coarsely granular. On account of its imperfect malleability, it is difficult to reduce it into small parts by filing or hammering; but it may be granulated, like the malleable metals, by pouring it, when fused, into cold water; or, if it be heated nearly to melting, it is then sufficiently brittle to be pulverized. It melts at about 700° Fahrenheit, and soon afterwards becomes red hot, burning with a dazzling white flame of a bluish or yellowish tinge, and is oxidized with such rapidity that it flies up in the form of white flowers, which are called *flowers of zinc*, or *philosophical wool*. These are generated with such rapidity that the access of air is soon intercepted, and the combustion ceases unless the metal be stirred, and a considerable heat kept up. If the metal be heated in close vessels, it rises without being converted into oxide. Chemists are not agreed as to the number of oxides of zinc; but the one above mentioned is the only one of importance. At common temperatures, it is white; but when heated to low redness, it assumes a yellow color, which gradually disappears on cooling. It is quite fixed in the fire, and insoluble in water. It is a strong salifiable base, forming regular salts with acids, most of which are colorless. It combines also with some of the alkalies. It consists of thirty-four parts zinc and eight parts oxygen. When metallic zinc is exposed for some time to air and water, or is kept under water, it acquires a superficial coating of a gray matter, which is called a *sub-oxide of zinc*. When zinc is burned in chlorine, a solid substance is formed, of a grayish-white color, semi-transparent. This is the *chloride of zinc*. It may likewise be made by heating together zinc filings and corrosive sublimate. It is soft as wax, fuses at a temperature a little above 212° Fahr., and rises in the gaseous form at a heat much below ignition. Its taste is intensely acrid, and it corrodes the skin. It acts upon water, and dissolves in it, producing much heat. Its solution, decomposed by an alkali, affords the white hydrated oxide of zinc. This chloride has been called the *butter of zinc* and *muriate of zinc*. It consists of nearly equal weights of zinc and chlorine. Bromide and iodide of zinc may be formed by processes similar to those for preparing the analogous compounds of other metals. Sulphuret of zinc may be formed by heating to redness a mixture of oxide of zinc and sulphur. This substance, as found in nature, will be described in the sequel, under the head of the *ores of zinc*. The salts of zinc possess the following general properties: They generally yield colorless solutions with water; ferroprussiate of potash, sulphureted hydrogen and alkalies, occasion white precipitates; infusion of galls produces no precipitate.—*Sulphate of zinc*. Dilute sulphuric acid dissolves zinc, and the salt may be obtained in fine prismatic four-sided crystals. It is commonly called *white vitriol*. It may be formed also by dissolving the white oxide of zinc in sulphuric acid. But it is more extensively manufactured from the native sulphuret in the following manner: The ore is roasted, wetted with water, and exposed to the air. The sulphur attracts oxygen, and is converted into sulphuric acid; and the metal, at the same time being oxidated, combines with the acid. After some time, the sulphate is extracted by solution in water; and by evaporating the solution to dryness, the mass is run into moulds. The taste of this salt is extremely styptic. It reddens vegetable blues, though in composition it is strictly a neutral salt. Dilute nitric acid combines rapidly with zinc, and produces much heat, at the same time that a large quantity of nitrous acid gas is evolved. The solution is very caustic, and affords crystals by evaporation of nitrate of zinc. Muriatic acid acts very strongly upon zinc, and disengages much hydrogen. Phosphoric acid also dissolves this metal. The phosphate does not crystallize, but becomes gelatinous, and may be fused by a strong heat. Fluoric, boracic, carbonic, acetic and oxalic acids, each forms compounds with the oxide of zinc. Zinc may be combined with phosphorus by projecting small pieces of phosphorus on melted zinc. The compound is white, with a shade of bluish-gray. Zinc forms a brittle alloy with antimony. An alloy of zinc and iron has been observed in a zinc manufactory at Bristol. It lined the tube leading from the retort. It was hard and brittle; the fracture showing the broad facets like zinc, but of a duller gray color, with surfaces more rough and granular. Its specific gravity was 7.172. It consisted of 92.6 zinc and 7.4 iron.—The *ores of zinc* are five in number; viz. *blende*, *red oxide of zinc*, *electric calamine*, *calamine*, and *white vitriol*.—1. Blende occurs crystallized in rhombic dodecahedrons, octahedrons, and in numerous intermediate forms. It cleaves with facility parallel to the faces of the rhombic dodecahedron, which is the primary form of its crystals; lustre adamantine; color reddish-brown, black, yellow and green; streak white to reddish-brown; hardness equal to that of apatite; specific gravity 4.5 to 4.8. It occurs massive also, as well as in crystals; structure curved, lamellar, columnar, granular and impalpable. Composition, according to the analysis of doctor Thomson:—

Zinc,	68.48
Sulphur,	23.16
Iron,	8.08

Blende occurs in primitive and secondary rocks, and is found associated with galena and copper pyrites. It abounds in England, Scotland, Saxony, Carinthia, and other European countries. In the U. States, it is found at the Southampton lead mine, and at several places in the neighborhood. Localities of it are also known throughout the secondary limestones of the Western States. It is the ore which affords the zinc of commerce. Specimens from some localities are phosphorescent, with a yellow light simply on friction. This is the case at Schlackenwald, Bohemia, in the Hartz, and in Perthshire. The splendent fibrous variety from Przibram contains a small proportion of the rare metal cadmium. This metal has likewise been detected in the radiated blende of Freyberg and Derbyshire.—2. *Red oxide of zinc*. This interesting ore possesses only a lamellar structure, never having been met with in perfect crystals. It yields to cleavage, parallel to all the faces of a regular six-sided prism. Its color is ruby or blood-red. It is translucent, with a shining lustre. By long exposure to the weather, it suffers decomposition at the surface. It is easily scratched by the knife; specific gravity 6.2. It consists of oxide of zinc 88 and red oxide of manganese 12. It is infusible before the blow-pipe, excepting when mixed with sub-carbonate of soda, in which case, it melts into a transparent yellow bead. Its only localities are

Franklin and Stirling, New Jersey, where it occurs along with ores of iron and manganese.—3. *Electric calamine.* This ore occurs crystallized, stalactitic, mamillary, and compact. The crystalline forms are numerous; the primary form is that of a right rhombic prism of 102° 30′ and 77° 30′. The crystals are not often solitary, but mostly disposed in radiating groups. It varies from transparent to translucent or opaque. Its hardness is above that of apatite; specific gravity 3.4. Its colors are grayish, bluish and yellowish-white, or possessed of some tinge of green; and occasionally it presents a brownish or blackish color. It consists of

Oxide of zinc,	68.3
Silex,	25.
Water,	4.4

When gently heated, it is strongly electric: some varieties become so by friction. Before the blow-pipe, it is infusible, but loses twelve per cent. by ignition. Coatings of it have been noticed upon the throat of the iron furnace at Salisbury in Connecticut. Its native localities are in primitive and secondary rocks. It is found at Retzbania in Hungary, at Bleiberg in Carinthia, and at Freyberg in the Brisgau. In Scotland, it is found in the lead mines of Wantockhead. It also occurs in Wales and England.—4. *Calamine.* This valuable ore is found crystallized, pseudimorphous and massive. The crystals are obtuse or acute rhomboids, or long quadrilateral tables: cleavage is parallel to all the planes of an obtuse rhomboid of 106° 30′; lustre between vitreous and resinous. It is more or less transparent, commonly of a grayish or yellowish-white color, with some shade of green or brown; hardness equal to apatite; specific gravity 4.1 to 4.4. It is composed of oxide of zinc 65.2 and carbonic acid 34.8. Before the blow-pipe, it is infusible, but loses about thirty-four per cent. by ignition. It dissolves with effervescence in muriatic acid. It is very abundant in England, in Siberia, and in several countries of Europe. Localities of it exist in the U. States, in Missouri. It is an ore which is highly prized, on account of the facility with which brass may be manufactured from it.—5. *White vitriol* occurs massive, stalactitic, botryoidal, reniform and investing. The structure of the massive is fibrous and radiated. It is shining, soft, brittle and translucent; specific gravity 2. It has a nauseous and metallic taste. It consists of

Oxide of zinc,	27.5
Sulphuric acid,	22.0
Oxide of manganese,	0.5
Water,	50.0

Before the blow-pipe, it is fusible with ebullition, giving off large quantities of sulphureous acid, and leaving a gray scoria. It dissolves in boiling water. It occurs principally with blende, from whose decomposition it is supposed to arise. Its localities are the Hartz, Austria, Sweden and England.

Zingarelli, Nicolo, a celebrated composer, the last scion of the genuine Neapolitan school, chapel-master at St. Peter's in Rome, was born at Naples, in 1752. In the seventh year of his age, he lost his father, and was placed at the conservatory in Loretto, for the purpose of studying music under Fenaroli. Cimarosa and Giordanello were his school-fellows here. To obtain a more complete knowledge of the theory of the art, he also studied under the abbate Speranza, and, on leaving the conservatory, received the place of master of the chapel at Torre dell' Annunziata. In 1781, he composed for the theatre San Carlos, in Naples, his opera *Montezuma*, and, in 1785, brought forward his *Alzinda*, in the theatre Della Scala in Milan, with great success. In this work, he adopted a more simple and easy style. His best operas are *Pirro*; *Artaserse*; *Romeo e Giulietta*. In 1789, he brought out his *Antigone*, from Marmontel, in Paris; but the public events, then occurring, absorbed the attention of the public, and he soon returned to Italy, where, in 1806, he became director of the Vatican chapel. In 1812, he was appointed chapel-master in St. Peter's, and, soon after, director of the new conservatory in Naples. Zingarelli has composed much church music; and his works are highly esteemed for their expression.

Zingis, Gengis, or Jenghis Khan. (See *Gengis Khan.*)

Zinzendorf, Nicholas Louis, count von, the restorer of the Moravians, or founder of the society of United Brethren (see *Bohemian Brethren*, and *United Brethren*), was born May 26, 1700, at Dresden, in Saxony, where his father was one of the elector's ministers of state, and much esteemed. He died early, and the son was educated by his grandmother, Mad. von Gersdorf, a pious and learned lady, who published a collection of hymns and poetical contemplations, and corresponded in Latin with the learned Schurtzfleisch. At that time, the opinions of the Pietists (q. v.), in Germany, attracted much attention. The pious Spener (q. v.) often visited Mad. von Gersdorf. His visits, and the pious meetings, held daily in the house, contributed to awaken early religious feelings in young Zinzendorf, which soon ran into extravagance. While a child, he used to write little letters to the Savior, and throw them out of the window, hoping that the Lord might find them. When ten years old, he was sent to the academy of Halle, then under the direction of its founder, the devout Franke. (q. v.) Here he established pious meetings, and founded a mystic order of the mustard-seed. His uncle and guardian did not view his turn of mind favorably, as he wished to prepare him for practical life, and sent him, in 1716, to the university of Wittenberg, the theological teachers of which were known under the name of the *Orthodox*, and were the most violent opponents of the Pietists of Halle. The feelings of Zinzendorf, however, remained unchanged, and, in 1717, when the centennial celebration of the reformation took place at Wittenberg, he shut himself up in his chamber, and mourned over the degeneracy of the church, with fasting and weeping. Besides his other studies, he applied himself, without assistance or guidance, to theology, and, at this early period, resolved to devote himself to the ecclesiastical profession. He left Wittenberg in 1719, and travelled through Holland and France. These travels he described in a work bearing the title Pilgrimage of Atticus through the World. During this period, he spent his time chiefly in conversing with distinguished clergymen on religious subjects. In 1721, he received an appointment in the government at Dresden, but, in 1727, resigned it, having, during his term of office, taken little share in business, and chiefly occupied himself with the study of theology and pious exercises. In 1722, he married a countess of Reuss von Ebersdorf, and gave some emigrant Moravian Brethren permission to settle on his estate of Berthelsdorf, in Upper Lusatia. This settlement received, in 1724, the name of *Herrnhut* (q. v.), which signifies "protection of the Lord." The settlers were at first few, but soon increased in number; and the count, in conjunction with a Lutheran minister, named Rothe, the clergyman of Berthelsdorf, and some others, labored to instruct them, and to educate their children. At length, he conceived the idea of founding a religious community,—not a sect, as the United Brethren do not consider themselves a sect,—and, for this purpose, made known his opinions in various writings, sometimes contradictory to each other, which excited much opposition. But the obstacles in the way of his plan could not induce him to give it up. In 1734, he went, under an assumed name, to Stralsund, passed an examination as a theological candidate, and preached for the first time in the city church. He now travelled into different countries, in order to extend his society, from which already missionaries proceeded; but, as may be imagined, he did not every where meet with a favorable reception. In 1736, he was banished from his country. The causes assigned were the innovations, conventicles and dangerous principles that he had introduced, by which the authority of the government, and the established forms of religious worship, were brought into disrepute. But, in 1747, this order was repealed. Zinzendorf, in the mean time, had been consecrated bishop of the Moravian church in Berlin. As he could not preach publicly in that city, he held for a time private meetings in his house, which were very much frequented. In 1739, he wrote a kind of catechism,—the Good Word of the Lord,—and made a voyage to St. Thomas and St. Croix, in the West Indies, where the Brethren had already established missions. (q. v.) His object was to put these on a firmer footing. With the same view, he went, in 1741, to North America, whither a daughter, sixteen years old, accompanied him. He assisted here in establishing missions among some of the Indian tribes. On all these expeditions, he was incessantly occupied, not only with preaching, corresponding, and attending to the general concerns of the society, but in writing books. He wrote, during this time, more than a hundred books, some for the edification and instruction of his society, others in answer to attacks on himself and his followers, and others giving accounts of the origin and organization of the society, and of his own labors. Many excellent and elevated passages are to be found in them, which J. G. Müller, in his sketch of Zinzendorf (in the Confessions of Remarkable Men, 3d vol., p. 166 et seq., 222 et seq.), has collected; but many parts of them are such as most readers would consider extravagant, and many expressions appear indecorous and objectionable. These are to be attributed to the warmth of his imagination, and his habits of rapid composition, connected, perhaps, with a desire of appearing original, and a want of taste. His hymns, in particular, which stand unaltered in the old hymn-book of the Herrnhuters, are full of quaint, ambiguous and indecent expressions and images, and are often far from bearing the stamp of poetic inspiration, especially those hymns in which he represents the mysterious union of Jesus, the Bridegroom, with his bride, the church; and not less objectionable was his doctrine of the office of mother (*Mutteramte*), which he ascribed to the Holy Ghost. Sometimes a whole hymn consists of but one image variously presented. These absurdities had even extended to the religious service. Zinzendorf himself, in the latter part of his life, would gladly have blotted out many of these passages from his writings, and strove to give a better direction to his community, in which he was not without success. Certainly part of the praise which must be given to the Moravians for their activity, their industry, their peaceable manners,* and good behavior, wherever they have settled, is due to their founder. When he returned, in 1743, to Europe, he made a journey to Livonia, where he had adherents; but the Russian government prohibited him from proceeding farther; and he was sent back to the frontier under a military escort. He then made several visits to Holland and England, where he spent above four years, and, countenanced by archbishop Porter, general Oglethorp, and others, obtained an act of parliament for the protection of his followers throughout the British dominions. Though the number of his opponents constantly increased, he had the satisfaction of seeing new societies of his followers arising, which sent missions to other parts of the world; e. g. the East Indies, Tranquebar, &c. He also succeeded in establishing a Moravian academy, and in obtaining a commission of investigation into their principles, which commission declared the Moravian community true adherents of the Confession of Augsburg. (See the article *United Brethren*.) His second wife was Anna Nitschmann, who, in 1725, had come with her parents from Moravia, and had been, for many years, superintendent of the "single sisters" at Herrnhut. Zinzendorf died May 9, 1760, at Herrnhut.—See David Cranz's *Alte und neue Brüderhistorie*, and Spangenberg's *Leben des Grafen N. L. von Zinzendorf* (Barby, 1772—1775, 8 vols.), of which Reichel and Duvernois have published abridgments. Herder, in his *Adrastea* (4th vol., number i), has made some excellent observations on Zinzendorf and his works.

Zion. (See *Sion*.)

Zircon. This rare mineral, which is sometimes a gem, occurs in crystals, whose forms are octahedrons and right square prisms surmounted by four-sided pyramids. The primary form is an obtuse octahedron, whose planes over the summit incline under the angle of 84° 20′. Cleavage takes place parallel to the faces of the primary figure, but with great difficulty; lustre adamantine; color red, brown, yellow, gray and white; streak white; specific gravity 4.5 to 4.7; hardness rather superior to quartz. It varies from transparent to opaque. Before the blow-pipe, alone, it is infusible, but with borax, melts into a transparent glass. It consists of

Zirconia,	64.00
Silex,	34.00
Oxide of iron,	0.25
Oxide of titanium,	1.00

Zircon occurs imbedded in sienite and granite. It is also found imbedded in several simple minerals, and occurs in the sands of rivers. Its localities are Frederick-Schwerin in Norway, Kitiksul in Greenland, at which places it is found in sienite. It occurs at several places in the mountains of gneiss, in New York and New Jersey; also in magnetic iron ore, at Monroe in New York. Very distinct detached crystals are brought from Buncombe county, in North Carolina. Loose crystals of fine colors are found in the sands of rivers in Ceylon, with spinelle ruby, sapphire, and iron sand; likewise in the district of Ellore, in India, and in the brook Expailly, in France. All the varieties of zircon which possess transparency, are cut and polished by the lapidary, but, in general, are not greatly esteemed. The exposure of some colors to heat deprives them of their hues, in which condition they are said to have been sold for diamonds.

Zirconia. This earth was discovered by Klaproth, in 1789, in the zircon. To obtain it, powder the zircon very fine, mix it with two parts of pure potash, and heat them red hot in a silver crucible for one hour. Treat the substance obtained with distilled water, pour it on a filter, and wash the insoluble part well. It will be a compound of zirconia, silex, potash, and oxide of iron. Dissolve it in muriatic acid, and evaporate to dryness, to separate the silex. Redissolve the muriates of zirconia and iron in water; and, to separate the zirconia which adheres to the silex, wash it with weak muriatic acid, and add this to the solution. Filter the fluid, and precipitate the zirconia and iron by pure ammonia; wash the precipitates well, and then treat the hydrates with oxalic acid, boiling them well together, that the acid may act on the iron, retaining it in solution, whilst an insoluble oxalate of ammonia is formed. It is then to be filtered, and the oxalate washed, until no iron can be detected in the water that passes. The earthy oxalate is, when dry, of an opaline color. After being well washed, it is to be decomposed by heat in a platina crucible. Thus obtained, the zirconia is perfectly pure, but is not affected by acids. It must be reacted on by potash as before, and then washed until the alkali is removed. Afterwards dissolve it in muriatic acid, and precipitate by ammonia. The hydrate thrown down, when well washed, is easily soluble in acids. It is insoluble in water and the pure alkalies, but the alkaline carbonates dissolve it. Heated with the blowpipe, it does not melt, but emits a yellowish phosphoric light. Heated in a crucible of charcoal, bedded in charcoal powder, placed in a stone crucible, and exposed to a good forge for some hours, it undergoes a hasty fusion, which unites its particles into a gray opaque mass, resembling porcelain. In this state, it is sufficiently hard to strike fire with steel, and scratch glass. Specific gravity 4.3. Potassium, when brought into contact with zirconia ignited to whiteness, is converted into potash, and dark particles of zirconium, the metallic base of the earth, make their appearance. They are as black as charcoal, and, at a temperature slightly elevated, burn with great intensity. It combines with sulphur, and forms a sulphuret of zirconium.

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* A remarkable proof of the peaceable and sober character of the Moravians, is to be found in the fact that, during the late revolt of the slaves in the island of Jamaica, in which the feelings of the whites were excited to the highest degree against the missionaries, so that they were in general ordered to leave the island, and a few were executed, the Moravians alone were allowed to remain undisturbed.

Zirknitz, or **Czirknitz**; a remarkable lake of the Austrian states, in Carniola, twenty-three miles south-west of Laybach. It is situated amidst lofty mountains and frightful precipices, containing vast subterranean caverns, which communicate with each other by openings, in general small. The lake is six miles in length, and three in breadth, and presents a curious phenomenon. The bottom remains dry for about four months, is cultivated, and made to produce a crop of millet and hay. At the end of that time, the water rises with great impetuosity, and fills the lake in the short space of twenty-four hours. This singular phenomenon is owing to its having two subterranean outlets, by which the water is discharged, and through which it again rises.

Zisca, or **Zizka** (pronounced *Shishka*). John Zisca, of Trocnow, the formidable general of the Hussites, was descended from a noble Bohemian family, and was born about 1360, on a farm belonging to his parents, at Trocnow, in the present circle of Budweis, in the open air, under an oak. He lost his right eye in his boyhood, but did not, as some have supposed, derive the name of Zisca from that circumstance. This was the name of his family, and does not signify *one-eyed*. He went as a page to the court of Wenceslaus VI, king of Bohemia, where he subsequently became a chamberlain. He displayed great talents from early youth, but, at the same time, a gloomy and solitary disposition. His first military service was in the band of volunteers who went from Bohemia and Hungary to assist the Teutonic knights against the Poles. He took part in the battle of Tanneburg, on July 15, 1410, in which the knights suffered a great defeat. Zisca then fought in the Hungarian service against the Turks, and afterwards with the English against the French, at the battle of Agincourt (1415). After his return, he remained at the court of king Wenceslaus, and shared in the indignation of a great part of the Bohemian nation, at the fate of the two reformers, Huss (q. v.) and Jerome of Prague. (q. v.) A monk having dishonored his sister, who was a nun, and abandoned her, Zisca became bent on vengeance. Wenceslaus himself one day told him, that, if he knew any means of taking revenge for the disgrace inflicted on the Bohemians at Constance, he had his consent to use them Zisca now left the court, tried the disposition of the people, and soon returned to Prague. Nicholas of Hussynecz had already placed himself at the head of the insurgents, and Wenceslaus called on the citizens of Prague to give up their arms; but Zisca led them armed into the castle (April 15, 1418), and he said to the king, "With these weapons will we fight for thee;" and the citizens retained their arms. Zisca was considered, from this time, the head of the Hussites. On the occasion of a procession (July 30, 1419), the priest of the Hussites was hit by a stone. They immediately stormed the town-house, at the instigation of Zisca, and threw thirteen of the city council out of the window on the pikes of the people. King Wenceslaus died of fear in consequence of this affair. His brother and successor, the emperor Sigismond, delayed undertaking the government of Bohemia, and Zisca gained time to make his preparations; yet he was at first obliged to retreat from Prague to Pilsen. Sigismond now began to execute the adherents of the new doctrine, and the Hussites, under Zisca, swore never to acknowledge him as king of Bohemia. They erected fortresses, and Zisca caused a town to be built on mount Tabor, from which the Hussites are sometimes called *Taborites*. He fortified the new city in a way which reflected honor on his skill. He is also said to have invented the bulwark of wagons, by which he protected his infantry against the enemy, as he was destitute of cavalry. In a short time, he disciplined his ill-armed and licentious horde. A few successful engagements procured him better arms, and horses for mounting a part of his men. His enterprises were undertaken from vengeance, religious hatred and love of plunder. He committed many cruelties, partly in order to make himself feared, partly because he was obliged to yield to the wild passions of his fanatical followers. In order to defend Prague against Sigismond, who was approaching with a large army, he repaired thither, and intrenched himself on the hill of Wittkow. Here, July 14, 1420, he repelled repeatedly the assaults of 30,000 men with 4000; and the place is still called *Zisca's hill*. From want of money, the emperor effected little during this campaign. In 1421, Zisca took the castle of Prague, and there got possession of the first four cannons, which, since the invention of gunpowder, had found their way to Bohemia. From this time, cannons and guns (though the latter could be procured at first only by noblemen) became common among the Hussites and their enemies. Zisca continued his system of plundering in Bohemia, took several fortresses, generally by assault, and treated the conquered cruelly. After the death of Nicholas of Hussynecz, in 1421, all the Hussites acknowledged him as their leader and chief; but he caused the crown of Bohemia to be offered to the king of Poland. By incredibly quick marches he every where anticipated the enemy. During the siege of the castle of Raby, an arrow deprived him of his only remaining eye. He now had himself carried about with his army on a car, so that he could be seen by his men, whom he arranged for battle by means of the descriptions which were given to him of the country. He had a legion called the *invincible brethren*, with which he generally decided the fate of actions. He defeated a considerable army which the emperor Sigismond sent against him, at Deutschbrod (Jan. 18, 1422), and even penetrated, in 1422, into Moravia and Austria. The citizens of Prague refusing to obey his orders, he humbled them by several defeats. Only once, at Kremsir, in Moravia, he was obliged to retreat. This was the only time that he was ever beaten in the open field. Sigismond offered him, at last, the government of Bohemia, with great privileges, if he would declare for him. But during the negotiations, while he was occupied with the siege of Przibislaw, in the circle of Czaslau, a pestilential disorder carried him off (Oct. 12, 1424). The Taborites, infuriated at his death, stormed the town, and killed every living being, and burnt every dwelling. Zisca had won thirteen pitched battles, and been victorious in more than a hundred fights, notwithstanding his blindness and age. He considered himself an instrument of God's wrath, and called the cries of the monks and priests whom he sent to the stake, his sister's bridal song. He was buried in the church of Czaslau; and his favorite weapon (an iron battle-axe) was hung up over his tomb. It is related that the emperor Ferdinand I, more than a hundred and thirty years after, when on a journey to Prague, happening to visit the church of Czaslau, and being told that Zisca was buried there, immediately left the church, and even the town. The tomb was overturned in 1627, by order of the emperor, and Zisca's bones removed. The story of his having ordered his skin to be used as a drum, is a fable.—See Max. Millauer's *Diplomatic Historical Essay on John Zisca of Trocnow* (Prague, 1824, in German); see also the article *Huss and Hussites*.

Zittau; a town eighteen leagues from Dresden, in the Saxon province of Upper Lusatia, on the river Mandau, which empties into the Neisse, in the vicinity; population, 8100; lat. 50° 49′ N. Zittau is the centre of an active transit trade, owing to its situation near the Bohemian frontier, and in the midst of some industrious manufacturing villages. Here are a gymnasium, five churches, a theatre, &c.

Zizania. (See *Wild Rice*.)

Znaym; a town in Moravia, capital of a circle of the same name, near the river Teya, thirty-eight miles north-west of Vienna, and sixty-eight south-west of Olmütz; lon. 16° 2′ E.; lat. 48° 31′ N.; population, 6000. It contains a citadel, a Catholic gymnasium, a Carthusian monastery, and some good houses, but is generally ill-built.—Population of the circle, 135,567; houses, 24,298; families, 33,578; square miles, 1260. It is generally hilly, but tolerably fertile. In the neighborhood of this town, the armistice between the French and Austrians was concluded July 12, 1809, which was followed by the peace of Vienna. (q. v.)

Zobeide, or **Zebd-el-Khewatin** (the *flower of women*), was the cousin and wife of the celebrated caliph Haroun al Rashid. (q. v.) History records her piety and generosity, and the Persian writers speak of her as the founder of Tauris, one of the chief cities of Persia: but she performs a more important part in the Arabian Nights, in which she is a more conspicuous character than in history. She died in 831, after having survived her illustrious husband twenty years.

Zobtenberg; a mountain in Silesia, about eighteen miles from Breslau, near the small town of Zobten, 2318 feet above the level of the sea, with a fine extensive view from the top. According to Büsching, the ancient Asciburg, or Asen castle (Asgard), stood here, corresponding to the *mons Asciburgius* of Ptolemy. The mountain is of a primary character. A block of from 7000 to 8000 cwt. was taken from this mountain, which, according to the wish of marshal Blücher, is to cover his tomb in the shape of a cube.

Zodiac (from the Greek ζωδια, animals, because the constellations composing it are represented under the figures of animals), in astronomy; an imaginary ring or broad circle in the heavens, in the form of a belt or girdle, within which the planets all make their revolutions. In the middle of it runs the ecliptic, or path of the sun in his annual course; and its breadth, comprehending the deviations or latitudes of the earlier known planets, is, by some authors, accounted sixteen, some eighteen, and others twenty degrees. The zodiac, cutting the equator obliquely, makes with it the same angle as the ecliptic, which is its middle line; which angle, continually varying, is now nearly equal to 23° 28′, which is called the obliquity of the ecliptic, and constantly varies between certain limits which it can never exceed. (See *Ecliptic*.) The zodiac is divided into twelve equal parts, of thirty degrees each, called the *signs of the zodiac*, being so named from the constellations which anciently occupied them. But the stars having a motion from west to east, those constellations do not now correspond to their proper signs; from whence arises what is called the *precession of the equinoxes*. And, therefore, when a star is said to be in such a sign of the zodiac, it is not to be understood of that constellation, but only of that dodecatemory, or twelfth part of it. (See *Constellations*, *Precession of the Equinox*, and *Denderah*.)

Zodiacal Light; a triangular beam of light, rounded a little at the vertex, which is seen at certain seasons of the year, before the rising and after the setting of the sun. It resembles the faint light of the Milky Way, and has its base always turned towards the sun, and its axis inclined to the horizon. The length of this pyramidal light, reckoning from the sun as its base, is sometimes 45°, and at others 150°; and the vertical angle is sometimes 26°, and sometimes 10°. It is generally supposed to arise from an atmosphere surrounding the sun, and appears to have been first observed by Descartes and by Childrey in 1659; but it did not attract general attention till it was noticed by Dominique Cassini (q. v.), who gave it its present name. If we suppose the sun to have an atmosphere, as there is every reason to believe from the luminous aurora which appears to surround his disc in total eclipses (see *Sun*), it must be very much flattened at its poles, and swelled out at the equator, by the centrifugal force of his equatorial parts. (See *Atmosphere*.) When the sun, then, is below the horizon, a portion of this luminous atmosphere will appear like a pyramid of light above the horizon. The obliquity of the zodiacal light will evidently vary with the obliquity of the sun's equator to the horizon; and in the months of February and March, about the time of the vernal equinox, it will form a very great angle with the horizon, and ought, therefore, to be seen most distinctly at that season of the year. But when the sun is in the summer solstice, he is in the part of the ecliptic which is parallel to the equator, and, therefore, his equator, and consequently the zodiacal light, is more oblique to the horizon. Laplace, however, has made some objections to this theory in his *Mécanique Celeste*; and Regnier is of opinion that it is owing merely to the refraction of the solar light by the earth's atmosphere.

Zoëga, George, a Dane, one of the greatest antiquarians of our time, was born Dec. 20, 1755, at Dahler, a village in Jutland, where his father was a clergyman. In 1772, he entered the gymnasium of Altona, and, in 1773, the university of Göttingen. In 1776, he travelled through Switzerland and Italy, and lived during the winter in Leipsic. In 1777, he returned to his parents, and remained until 1778 in Copenhagen. He now became a tutor, and went, in 1779, with his pupil, to Göttingen, and again to Italy. In 1782, he made a third journey to Italy. On his return, having heard in Paris of the change of ministry in Copenhagen, he resolved to go back to Rome, and reside there the rest of his life. In 1787, he became a Catholic, in order to be able to marry the daughter of the painter Pietruccioli. Zoëga undoubtedly received his first impulse to a profound investigation of antiquity from Winckelmann. (q. v.) He lived entirely with the ancients; and no modern characters or events exerted such an influence over him. In early youth, he had an inclination to melancholy, and his temper was irritable; but he overcame these propensities, and the serene tranquillity of the Greek character took possession of his soul. He was kind, and had a noble heart. He observed strictly the external forms of religion. When he arrived in Rome, professor Adler presented him to cardinal Stefano Borgia, whose favor and patronage he soon obtained. This cardinal had a great fondness for Egyptian antiquities, of which he possessed a rich collection. Zoëga, who was acquainted with the Coptic language, soon began to explain these ancient monuments. In 1787, he published an account of a complete collection of Egyptian coins, with full illustrations. The general approbation bestowed on this work, which furnished important contributions to history and chronology, excited the attention of pope Pius VI, and he employed Zoëga in the explanation of the obelisks. In 1797, he published, at the expense of the pope, his great work on the obelisks—*De Origine et Usu Obeliscorum* (Rome, 1797)—which procured him great reputation. The *Museo Borgiono Veliterno* was rich in Coptic manuscripts. Zoëga undertook the difficult task of explaining them, and, in 1810, the fruits of this immense labor were given to the public. Zoëga wrote, in the German language, an Archæological Guide through Rome; and himself accompanied the most distinguished travellers through the city. A treasure of rare knowledge is contained in his *Li Bassirilievi antichi di Roma, incisi da Tom. Piroli colle Illustrazioni di Giorgio Zoega*, in two folio volumes (Rome, 1808). He often regretted, at a later period, that he had not devoted to Grecian antiquities the time which he had given to the Egyptian. The Danish government appointed him its consul-general for the States of the Church; and, a few days after his death, a diploma of the Danebrog order, intended for him, arrived in Rome. He was professor of the university of Kiel, and member of the academies of Copenhagen, Göttingen, Berlin, Siena, Florence, Rome, &c. He died February 10, 1809. He had eleven children; but three only survived him, who are supported by the Danish government. Mr. Niebuhr, the historian, offered a prize, some years before his death, for the best essay on Zoëga and his productions.

Zoilus; the name of a Thracian rhetorician, whose hypercriticisms on the works of Homer have given him a very unenviable kind of distinction with posterity. He was a native of the town of Amphipolis, said to have been born about 270 years before the Christian era, and studied under Polycrates, himself an abusive and illiberal critic. The appellation by which Zoilus delighted to be known, was Homero-mastyx, although his censures were by no means confined to the writings of the great father of epic poetry, but extended indiscriminately and impartially to those of Demosthenes, Aristotle, Plato, and all others whose works came under his lash. His very name has now become a proverb, as applied to all illiberal and captious pretenders to criticism. The period of his death, which was a violent one, is unknown: indeed, the precise era in which he lived is not absolutely determined, Vitruvius making him contemporary with Ptolemy Philadelphus, while Ælian refers him to the ninety-fifth Olympiad.

Zoisite. (See *Epidote.*)

Zollikofer, George Joachim, one of the most eminent preachers of the last century, was born at St. Gall, in Switzerland, August 5, 1730. He studied at the gymnasia of Frankfort on the Maine, and of Bremen, and at the university of Utrecht, and, in 1754, became a clergyman at Morat, in Switzerland. In 1758, he accepted an invitation from a congregation at Leipsic, and remained in this situation until his death, January 20, 1788. During these thirty years, he did great good, not only in his congregation, but also among the students of the university in Leipsic. Two hundred and fifty of his sermons have appeared in print. From 1769 to 1788, he published four collections, in six volumes, which went through several editions. After his death, his remaining sermons were published in nine volumes. The whole of his sermons have been published in fifteen volumes (Leipsic, 1789—1804). Two volumes have of late been translated into English, by reverend W. Tooke; also a small volume of his Devotional Exercises. Zollikofer also published a Hymn Book (eighth edition, Leipsic, 1786), besides translations of some English and French works. Garve (q. v.) wrote on the character of Zollikofer (Leipsic, 1788).

Zonaras, John; a monk of St. Basil, by birth a Greek, who lived during the latter part of the eleventh and the commencement of the following century. Before he renounced the world for the cloister, he had filled some distinguished offices about the imperial court, but becoming, at length, disgusted with its intrigues, gave himself up to a religious life, employing his leisure hours in the compilation of a History of the World, from the Earliest Periods to the Year 1118. In this work (of which an edition appeared at Paris, in two folio volumes, 1687), he follows, principally, the narrative of Dion Cassius; and all the earlier part of the book is a tissue of fable; but, as he approaches his own times, he becomes more entitled to attention, as all his mistakes arise evidently more from ignorance than design. There is also extant a commentary on the apostolic canons by him. His death took place about the year 1120.

Zone. The whole surface of the earth is divided into five zones—the torrid, northern and southern temperate, and northern and southern frigid zones. The torrid zone extends 23½° north and south of the equator; and, twice a year, the sun shines vertically on its inhabitants. This zone is bounded, on both sides of the equator, by the two tropics; that is, the circles in which the sun reaches its greatest distance from the equator. As the rays of the sun here are nearly vertical, a perpetual summer reigns, and day and night, under the equator, are always equal; and even at the tropics, the difference is scarcely an hour. Owing to the nature and situation, however, of the countries in this zone, the heat is not every where the same. The warmest portions are the sandy deserts of Africa: far more temperate are the happy islands of the South seas, and still milder the climate of Peru. This last country contains mountains from whose summits the vertical sun-beams never melt the perpetual snow. The two temperate zones extend from the tropics to the polar circles. They contain the most populous countries, and the climate is various. As the distance from the tropics increases, the heat diminishes, the difference of the seasons becomes greater, the days and nights become more unequal, until we arrive at a point where, once a year, the sun does not appear above the horizon during the twenty-four hours, and, once a year, does not set for the same time. The circles passing through these points, parallel to the equator and the tropics, form the limits of the temperate zones, and are called the *arctic* and *antarctic circles*. The distance from the tropics to the polar circles, or the breadth of the temperate zones, both in the northern and southern hemispheres, is 43°. All beyond the polar circles, to the poles, is called the *frigid zones*. No land is known to exist in the southern frigid zone. The northern is habitable, though it produces neither grain nor trees, but only mosses, lichens, and a few bushes. The distance from the polar circles to the poles is 23½°; but no one has yet penetrated to the poles themselves. Cook sailed as far as the seventy-first degree of latitude, towards the south pole, which is still more inhospitable than the north, as its winters occur at the time of the earth's greatest distance from the sun. To the north, the eightieth degree has been reached. (See *North Polar Expeditions*.) The characteristic of the frigid zones is, that day and night are more and more unequal the nearer you approach the poles; and for days, and even weeks, the sun is above or below the horizon. (See *Seasons*.)

Zoogene (from *ζωον*, animal, and *γενναω*, to produce). On the surface of the thermal waters of Baden, in Germany, and on the waters of Ischia, an island of the kingdom of Naples, a singular substance is collected, which has been called *zoogene*. It resembles human flesh with the skin upon it, and, on being subjected to distillation, affords the same products as animal matter. M. Gimbernat (*Journal de Pharmacie*, April, 1821) has also seen rocks covered with this substance, in the valleys of Sinigaglia and Negropont. Salverte (*Des Sciences Occultes*, 1829, 2 vols., 8vo.) considers this fact as explaining the stories of showers of pieces of meat, which figure in the number of prodigies of antiquity.—The name of *zoogene* is also given to a substance obtained from bones, by a chemical process which was discovered by M. Gimbernat. Much of it was sent, in 1827, to Greece, and much of it also was used by the French army, on the expedition to Algiers.

Zoolithes (from ζωον, animal, and λιθος, stone): fossil animal remains, great numbers of which have been found in digging into the surface of the earth. They differ from petrifactions, which are organized bodies, penetrated with stony matter, or completely converted into stony masses, by the gradual removal of the organic matter, the place of which has been supplied by stony deposits. Zoolithes have been divided into six classes—*tetrapodolithes*, or fossil quadrupeds; *ornitholithes*, or fossil skeletons of birds; *amphibiolithes*, or fossil remains of the *amphibia*, *ichthyolithes*, or fossil fish; *entomolithes*, or fossil insects; and *helmintholithes*, or fossil worms. (See *Geology*, and *Organic Remains*.)

Zoology (from ζωον, animal, and λογος, doctrine); that part of natural history which treats of animals. It is not confined to a description of the external forms of animals, but embraces all the phenomena of life and animal motion; the internal organization of each individual part; the processes of digestion, assimilation, nutrition, secretion and reproduction; the wonderful instincts, the varied dispositions, and the different degrees of intellect, manifested in the animal creation, from the half-vegetable zoophyte up to man. Although it cannot be doubted that the attention of men was early attracted to an observation of the habits and natures of the lower order of animals, Aristotle seems to have been the first who furnished the world with any methodical information on this subject. His work Περι Ζωων 'Ιστοριαι contains a great number of facts and observations. He compares the organization of the lower animals, in its different parts, with that of man, and treats of their mode of generation, habits, organs, &c., with great clearness and sagacity; and his principal divisions of the animal kingdom are so well founded that almost all of them are still substantially admitted. Among the Romans, zoology does not appear to have been at all cultivated, until the time of Pliny, who is the only Roman zoologist worthy of notice. His work (*Historia Naturalis*) contains multitudes of original traits, though it is only a compilation, and describes the habits and dispositions of animals with great felicity. He adopted, without examination, many fabulous stories, and too often neglected important details. Ælian (q. v.) was far inferior to the two above-mentioned writers, and his Natural History of Animals may be considered as the source of all the falsehood and error which so long disgraced this branch of natural history. Apuleius, and Athenæus the grammarian, are the only names that deserve mention, from the time of Ælian and Pliny to the beginning of the sixteenth century; and they added nothing to the stock of zoological science. At the latter period, flourished, among others, Belon, a French physician, who made the closest approach of any author of that time to any thing like systematic classification, in his *De Aquatilibus*, and particularly in his *De la Nature des Oiseaux* (Paris, 1555, folio); Salviani, author of a treatise, *Aquatilium Animalium Historia* (Rome, 1554, folio), which is superbly illustrated; Conrad Gesner, whose *Historia Animalium* (Zürich, 1550—1587, 4 vols., folio), arranged in alphabetical order, forms the foundation of modern zoology; and Aldovrandus, the most laborious of compilers, who devoted sixty years to his work on natural history, in fourteen volumes, folio, of which the greater part was published after his death. These earlier writers were followed, in the next century, by Redi and Swammerdam (q. v.), to whom entomology is so much indebted, and by Ray (q. v.), the first naturalist, from the time of Aristotle, who produced any thing like a scientific arrangement. The works of Ray, under his own name, are *Synopsis Quadrupedum et Serpentum* (1693, 8vo.); *Synopsis Avium et Piscium* (1713); and *Historia Insectorum;* and he is also considered to have had a large share in the compositions of his pupil Willoughby. But it was reserved for Linnæus to raise natural history to the rank of a science. Gifted with extraordinary powers of invention and discrimination, a most retentive memory, an unrelaxing industry, and the most ardent zeal in the cause of science, this great man observed, with the acutest sagacity, the subtilest affinities of organized nature. The general character of his works is order, precision, clearness, exactness of description, and an accurate knowledge of relations in detail. Buffon adorned natural history with the charms of eloquence, and was the first who extended its popularity beyond mere scholars and men of science. He was occasionally carried, by the force of his imagination, into unfounded hypotheses; yet he had a truly philosophical spirit, could observe facts, and compare results, and possessed extensive information. The four great naturalists whom we have had occasion to mention, have exhibited nature under different aspects. Aristotle has shown us the profound combination of its laws; Pliny its inexhaustible riches; Linnæus its wonderful details; and Buffon its majesty and power. Since the time of Buffon, all the departments of zoology have been cultivated with a zeal, a minute accuracy, and an extensiveness of research, before unequalled. Our limits will not allow us to mention all those who have distinguished themselves in the cultivation of the whole field of the science, much less those who, confining themselves to particular branches of it, have yet rendered most important services by the exactness of their researches and the novelty of their views. Among the Germans, Illiger and Blumenbach hold the first rank as zoologists; but it is to France that we are chiefly indebted for the strong impulse which has been given, in our times, to the progress of natural science, and of zoology in particular. The name alone of Cuvier, whose recent death (1832) science deplores, sufficiently indicates the brilliant triumphs of natural history in that country. We have already treated, at some length, of some parts of this extensive subject, under the general heads *Animals*, *Anatomy*, and *Physiology*, and of the nomenclature of particular classes of animals under those of *Insects*, and *Entomology*, *Conchology*, *Fishes*, and *Ichthyology*, *Ornithology*, *Reptiles*, *Serpents*, &c.; and we shall now proceed to give some notice of the principal methods pursued by eminent zoologists, with a particular view of mastology, or the classification of the mammiferous animals. The immense number of facts embraced by natural history could never be retained in the memory without an arrangement of divisions and subdivisions founded upon some distinguishing characteristics. Aristotle's system of arrangement was simple, resting on divisions derived mainly from the external structure, food, habits and locality. But though neither human nor comparative anatomy was then sufficiently cultivated to enable him to make the internal structure of animals the basis of his divisions, yet Aristotle was not insensible to the advantages of a more scientific distribution, and, with his usual sagacity, recommends to succeeding writers to turn their attention in that direction. Ray followed the advice of the great master, and remarked the great distinction, that some animals possessed lungs and a sanguineous system, while others were destitute of both. Linnæus, proceeding on the general arrangement of Ray, but with many extensions and improvements, divided the animal kingdom into six classes, founded mainly on the differences in the respiratory and sanguineous systems.

CLASS I.—*Mammalia*. All suckle their young; the heart has two auricles and two ventricles; blood red and warm; viviparous.

CLASS II. *Aves* (Birds). Characters of sanguineous system as in first class; viviparous.

CLASS III. *Amphibia*. Heart one auricle and one ventricle; blood red and cold; respiration voluntary.

CLASS IV. *Pisces* (Fishes). Heart and blood as in *amphibia;* respiration by gills.

CLASS V. *Insecta*. Heart one ventricle and no auricle; sanies cold, colorless; antennæ, or feelers.

CLASS VI. *Vermes* (Worms). Characters as in V, except no antennæ, but tentacula.

He then subdivides the *Mammalia* into seven orders, the distinctions of which are taken from the difference in the number, form and situation of the teeth, without, however, neglecting the feet.

ORDER 1. *Primates*. Four incisors in each jaw, and one canine.—GENERA: *homo*, *simia*, *lemur*, *vespertilio*.

ORDER 2. *Bruta*. No incisors.—GENERA: *rhinoceros*, *elephas*, *trichechus*, *bradypus*, *myrmecophaga*, *manis*, *dasypus*.

ORDER 3. *Feræ*. Six conical incisors in each jaw, for the most part.—GENERA: *phoca*, *canis*, *felis*, *viverra*, *mustela*, *ursus*, *didelphis*, *talpa*, *sorex*, *erinaceus*.

ORDER 4. *Glires*. Two incisors in each jaw; no canines.—GENERA: *hystrix*, *lepus*, *castor*, *mus*, *sciurus*, *myoxus*, *cavia*, *arctomys*, *dipus*, *hyrax*.

ORDER 5. *Pecora*. No fore-teeth in the upper jaw; six or eight in the under.—GENERA: *camelus*, *moschus*, *giraffa*, *cervus*, *antilope*, *capra*, *ovis*, *bos*.

ORDER 6. *Belluæ*. Obtuse fore-teeth in each jaw.—GENERA: *equus*, *hippopotamus*, *sus*, *tapir*.

ORDER 7. *Cete*. No uniform character of teeth; aquatic pectoral fins; spiracula.—GENERA: *monodon*, *balæna*, *physeter*, *delphinus*.

The other classes are subdivided in a similar manner. We shall enumerate only the orders. The distinctions of the *Aves* are taken chiefly from the beak; but the tongue, nostrils, feet, and other parts, are sometimes called in.

Order 1. *Accipitres.*
——— 2. *Picæ.*
——— 3. *Anseres.*
——— 4. *Grallæ.*
——— 5. *Gallinæ.*
——— 6. *Passeres.*

(See *Ornithology.*)

The *Amphibia* are divided into two orders.

Order 1. *Reptilia.* Furnished with feet, and breathing through the mouth. (See *Reptiles.*)

Order 2. *Serpentes.* Destitute of feet, and breathing through the mouth. (See *Serpents.*)

The fourth class, *Pisces*, is subdivided into six orders, the characters of which are taken from the belly-fins.

Order 1. *Apodes.* No ventral fins; embraces the eel kind, torpedo, &c.

Order 2. *Jugulares.* Ventral fins placed before the pectoral; cod, blenny, &c.

Order 3. *Thoracici.* Ventral fins under the pectoral; sucking-fish, goby, plaice, doree, &c.

Order 4. *Abdominales.* Ventral fins placed behind the pectoral; skate, salmon, pike, &c.

Order 5. *Branchiostegi.* Gills destitute of long rays; sun-fish, pipe-fish, &c.

Order 6. *Chondropterygii.* Cartilaginous gills; lamprey, ray, shark, &c.

The fifth class, that of *Insects*, is divided into seven orders, the characters of which are mostly taken from the differences observed in the number and texture of the wings.

Order 1. *Coleoptera.*
——— 2. *Hemiptera.*
——— 3. *Lepidoptera.*
——— 4. *Neuroptera.*
——— 5. *Hymenoptera.*
——— 6. *Diptera.*
——— 7. *Aptera.*

The sixth class, *Vermes*, is subdivided into five orders.

Order 1. *Intestina.*
——— 2. *Mollusca.*
——— 3. *Testacea.*
——— 4. *Zoophyta.*
——— 5. *Infusoria.*

The arrangement of Linnæus, with all its advantages, had its defects. By confining himself too much to one kind of character, he often throws together subjects widely remote in their general appearance and economy; but he has carried the art of distribution, and the management of characters, to such a degree of clearness and brevity, that any person familiarized to his language may easily find the name and place of any being he wishes to observe. It still remained a desideratum to arrange the facts, of which the science treats, in a series of propositions, so graduated and successively subordinate, that the whole might represent the actual relations of living beings. For this purpose, it was necessary to group animals according to their different properties or organizations, so that those contained in such a group should bear a stronger natural resemblance to each other than to any individual of a different group. This arrangement is termed the *natural* method, for the formation of which zoology offers great facilities. In the arrangement of Cuvier, the completest and most scientific yet presented to the world, the great division of the animal world rests on the nervous and sensorial, and not on the circulatory and respiratory, systems. From the study of the physiology of the natural classes of vertebrated animals, Cuvier discovered the respective quantity of respiration, the reason of the quantity or degree of motion, and, consequently, the peculiar nature of that motion. This last gives rise to the peculiar form of their skeletons and muscles; and with it the energy of their sensations, and the force of their digestion, are in a necessary relation. Thus zoological arrangement, which had hitherto rested on observation alone, assumed a truly scientific form. Calling in the aid of comparative anatomy, it involves propositions applicable to new cases, and thus becomes a means of discovery as well as a register of facts; and, by correct reasoning, founded on copious induction, it partakes of the demonstration of mathematics, and the certainty of experimental knowledge. Having examined the modifications which take place in the organs of circulation, respiration and sensation in the invertebrated animals (a title first given by Lamarck, instead of the erroneous one of *white-blooded* animals, by which they were previously distinguished), Cuvier has formed a new division, in which these animals are arranged according to their actual relations. The following is a view of the system as exhibited in the second edition of the *Règne Animal*, published in 1829 (5 vols., 8vo.). Of the four great divisions into which the animal kingdom is divided—*Vertebrated*, *Molluscous*, *Articulated*, and *Radiated* animals—and of their general subdivisions, an account is given in the article *Animal*.—The first subdivision, or the class *Mammalia*, is again subdivided into eight orders, as follows :—

ORDER I.
BIMANA.

Having hands at the anterior extremities alone. One species—man.

ORDER II.
QUADRUMANA.

Having hands at the four extremities.

Simia (Monkey).
Ouistiti.
Makis, or *Lemurs*.

ORDER III.
CARNASSIERS.
FAMILY 1.
CHEIROPTERA.

Vespertilio (Bat).
Galeopithecus.

FAMILY 2.
INSECTIVORA

Erinaceus (Hedgehog).
Tendrac (*Centenes*, Illig.).
Cladobates (Tupaia.)
Sorex (Shrew).
Mygale (Desman).
Chrysochloris.
Talpa (Mole).
Condylura.
Scalops (Shrew-Mole).

FAMILY 3.
CARNIVORA.
TRIBE 1.
PLANTIGRADE.

Ursus (Bear).

TRIBE 2.
DIGITIGRADE.

Mustela (Marten).
Canis (Dog).
Viverra (Civet).
Hyæna.
Felis (Cat).

TRIBE 3.
AMPHIBIOUS ANIMALS.

Phoca (Seal).
Trichechus (Morse).

ORDER IV.
MARSUPIAL ANIMALS.

Didelphis (Opossum).
Dasyurus.
Phalangista.
Potorous (*Hypsiprymnus*, Illig.)
Macropus (Kangaroo).
Koala (*Lipurus*, Goldf.) *Phascolarctos*.
Phascolomys (Wombat).

ORDER V.
GLIRES (RODENTIA).

Sciurus (Squirrel).
Mus (Rat).
Helamys (*Pedetes*, Illig.).
Spalax.
Orycterus.
Geomys (*Pseudostoma*, Say).
Diplostoma.
Castor (Beaver).
Couia (*Myopotamus*, Comm.).
Hystrix (Porcupine).
Lepus (Hare).
Cavia (Guinea Pig).

ORDER VI.
EDENTATA.
TRIBE 1.
TARDIGRADE.

Bradypus (Sloth).
Megatherium (fossil).

TRIBE 2.
COMMON EDENTATA.

Dasypus (Tatou).
Orycteropus.
Myrmecophaga (Anteater).
Manis (Pangolin).

TRIBE 3.
MONOTREMA.

Echidna (Spinous Anteater).
Ornithorhynchus (*Platypus*, Shaw).

ORDER VII.
PACHYDERMATA.
FAMILY 1.
PROBOSCIDIANA.

Elephas.
Mastodon (fossil).

FAMILY 2.

COMMON PACHYDERMATA.

Hippopotamus.
Sus (Hog).
Phacochærus.
Dicotyles (Peccary).
Anoplotherium (fossil).
Rhinoceros.
Hyrax.
Palæotherium (fossil).
Lophiodon (fossil).
Tapir.

FAMILY 3.

SOLIPED.

Equus (Horse).

ORDER VIII.

RUMINANTIA.

(Without horns.)

Camelus.
Moschus.

(Horned.)

Cervus (Deer).
Camelopardalis (Giraffe).
Antelope.
Capra (Goat).
Ovis (Sheep).
Bos (Ox).

ORDER IX.

CETACEA.

FAMILY 1.

HERBIVOROUS.

Manatus (Lamantin).
Dugong (*Halicorus*, Illig.)
Stelleras (*Rytina*, Illig.)

FAMILY 2.

COMMON CETACEA.

Delphinus (Dolphin).
Narwhal (*Monodon*, L.).
Cachalot (*Physeter*, L.)
Balæna.

CLASS II. *Aves.* (See *Ornithology.*)
CLASS III. *Reptiles.* (See *Reptiles.*)
CLASS IV. *Pisces.* (See *Ichthyology.*)

The second general division of Cuvier comprises the *molluscous* animals (see *Conchology*), the third the *articulated* animals (see *Entomology*), and the fourth the *radiated* animals (see *Zoophytes*).—Consult Fleming's *Philosophy of Zoology* (2 vols., Edinburgh, 1822), and Griffith's *Animal Kingdom of Cuvier, with additional Descriptions* (1st vol., London, 1827; not yet completed).

ZOOPHYTE (from ζωον, animal, and φυτον, plant), in a wider sense, comprises the five classes of animals included by Cuvier in the fourth great division of the animal kingdom, to which he gives the name of *radiated* animals, from their often exhibiting a radiated form of the whole body, or of some of its parts. We have described the general characters of this division, and the five classes of which it consists, in the article *Animal*. They are termed *apathica* (α, without, παθος, feeling) by Lamarck, from their all being destitute of organs of sense, and even of nerves, and from his considering their motions to be mere automatic phenomena, not accompanied with feeling. They form the division called *acephala* (α, without, κεφαλη, head) by Latreille, from their having no part analogous to the head of the articulated classes. In a narrower sense, the term is applied to the fourth class of this division, which we have described in the article *Polype*.

ZOOTOMY. (See *Anatomy*.)

ZOPYRUS; a Persian, son of Megabyzus, who, to show his attachment to Darius, the son of Hystaspes, while he besieged Babylon, cut off his ears and nose, and fled to the enemy, telling them that he had received such treatment from his royal master because he had advised him to raise the siege, as the city was impregnable. This was credited by the Babylonians; and Zopyrus was appointed commander of all their forces. When he had totally gained their confidence, he betrayed the city into the hands of Darius, for which he was liberally rewarded. Darius used to say that he had rather have Zopyrus not mutilated than twenty Babylons.

ZORNDORF, BATTLE OF; the bloodiest, and, in many respects, one of the most remarkable battles in the seven years' war (q. v.), fought on Aug. 25, 1758, between the Prussians commanded by Frederic the Great, and the Russians under general Fermor, the latter 50,000 men strong, the former 30,000. Frederic was victorious. The Russians lost towards 19,000 killed, and 3000 taken prisoners; the Prussians 10,000 killed. Frederic was obliged, immediately after, to hasten to Saxony.

ZOROASTER, or **ZERDUSHT**; the distinguished reformer of religion in Media, whose doctrines also spread into Persia. There are no certain accounts of him: his history is mostly enveloped in darkness. It is highly probable that he was by birth a Median, and lived under the Median king Gustasp, who, according to Hammer, was the same as Darius Hystaspes, but, according to others, Cyaxares I. If the last supposition is correct, he lived not much before the time of Cyrus. The religion introduced by him ought not to be considered as entirely new. From the investigations of Hammer, it would appear that pure fire-worship (in which, however, the fire was only symbolical) was the oldest religion of the Bactro-Median race; and from this the worship of the planets sprung. Zoroaster refined this fire-worship. It is not settled whether his improvements were, at first, adopted by the magi only, or whether they were received by the Medians generally, and afterwards communicated by them to the Persians, their conquerors. The latter supposition has much in its favor, particularly the circumstance that the Persians showed a great readiness to adopt foreign religions, which may have arisen, in a great measure, from their deification of the powers of nature. Shortly after the time of Socrates, the religion of Zoroaster had spread throughout Persia. The following are its principal doctrines:—From eternity there have existed two beings, Ormuzd and Ahriman, the principles of the universe. Ormuzd is pure, eternal light, the original source of all perfection. The nature of Ahriman, likewise, belonged originally to light; and so far he was good; but because he envied the light of Ormuzd, he obscured his own, became an enemy of Ormuzd, and the father of evil, and of all bad beings, who join with him in a contest with the good. Ormuzd and Ahriman performed the work of creation at different epochs, and brought into existence various species of beings. Ormuzd created, by his living word, that is, the power of his will, the community of good spirits—first, six immortal spirits of light, for the service of his throne (Amshaspand); then twenty-eight subordinate spirits, representatives of the months and days; and, at last, a multitude of human souls. Ahriman produced a number of bad spirits, six arch-devs, spirits of darkness, and innumerable devs of lower rank. The good dwell with Ormuzd in light. Ahriman lives with his creatures in the kingdom of darkness. 3000 years Ormuzd ruled alone; after which he created material beings, in their various degrees; at last, man, and, after the labor, celebrated the first festival of creation with the good spirits. Again he ruled in this world of innocence and happiness 3000 years. In the next period of equal length, begins the contest between light and darkness, Ormuzd and Ahriman, who, in a continual struggle, divide the dominion of the world. The following 3000 years extend and confirm the power of Ahriman: afterwards his power declines; the devs sink to nothing; their former prince does homage to Ormuzd; the bad disappear. The dead arise; the primitive kingdom of happy souls, under the government of Ormuzd, returns. Thus the world is made to continue 12,000 years. The twelve signs of the zodiac play a part: to each is assigned a thousand years. The number seven, as presented in the seven amshaspands, and seven arch-devs, including Ormuzd and Ahriman, refers to the planets. The subordinate genii of the material world are the personified parts and elements of nature. The spirits of men pass through a state of happiness before they reach the body; and, in that heavenly state, contend with bad spirits, protect the good upon earth, and are reverenced by them. Men themselves are either the servants of Ormuzd, through wisdom and virtue, or the slaves of Ahriman, through folly and vice. The former pass, after death, over the bridge Shinevad, into the dwelling of the happy; the latter fall into hell. When Ahriman is conquered, the resurrection of the body follows, and the earth is adorned for the residence of the virtuous. The essential doctrines of Zoroaster are found in the *Zend-Avesta*, the most sacred record of his religion. The discovery of this ancient monument by Anquetil du Perron, did not, at first, receive credit. He left Paris in 1755, to investigate the religion of all the nations of Asia not professing the Mohammedan faith, particularly the inhabitants of India—an undertaking which he successfully executed, notwithstanding numerous obstacles. (See *Anquetil du Perron*.) At Surat, he obtained, from some learned Persians, a copy of the books of the *Zend-Avesta*, in the Zend and Pehlvi languages. The latter he studied himself, and translated, in conjunction with learned natives, the *Zend-Avesta* into modern Persian. Having returned to France, he gave to the library in Paris the manuscripts which he had collected in India, and published a translation of the *Zend-Avesta* into the French language, with notes. The celebrated Orientalist sir William Jones expressed himself warmly against the extraordinary account of Anquetil; but Kleuker, the German translator of the *Zend-Avesta*, has combated the doubts entertained on the subject with much force. Late inquiries into the religions of antiquity, particularly those which relate to India, have illustrated many points in the doctrines of Zoroaster. The literary treasures which the celebrated linguist Rask has lately brought from India, promise new light, and tend to confirm the genuineness of the *Zend-Avesta*. (See *Zend-Avesta*.) But the books which are known under the name of the Oracles of Zoroaster, and which have stood in high repute, particularly among mystics, and students of the secret sciences, by which men hoped to discover the philosopher's stone, are, obviously, forgeries of a later period.

Zrinyi, or **Zrini**, Nicholas, count of, general of the emperor Ferdinand I, ban of Croatia, Dalmatia and Sclavonia, a modern Leonidas, was born in 1518. When but a boy of twelve years, he distinguished himself so much during the siege of Vienna that Charles V gave him a horse and gold chain. He also distinguished himself in the wars against John of Zapolya, and sultan Suleyman (Soliman), the ally of Zapolya, and did much to improve light cavalry. His noble figure, his vivacity, liberality, and strict justice, gained him the love of his soldiers to an uncommon degree. In 1542, at the battle of Pesth, his sudden arrival struck dismay into the enemy, and decided the victory. For twelve years, he defended Croatia, over which he presided as ban, against the Turks, and repelled them, in 1562, from Szigeth. (q. v.) The greater part of Hungary, however, was already a Turkish pachalic, and the rest was obliged to pay tribute. Suleyman the Invincible was desirous of taking Szigeth. A defeat which the vanguard of the sultan sustained, at Sziklos, from the troops of Zrinyi, excited his wrath. The famous grand vizier, Mehmed Sokolowich, a renegade of Croatia, marched, with 65,000 men, to the attack of Szigeth. A bridge was thrown over the swollen Drave, under difficulties such as could be overcome only by the iron will of the Turkish despot; and the army passed over the river between August 1 and 9. Zrinyi collected his soldiers, 2500 in number. They swore—first he himself, then each soldier to his captain, and then all the captains to him—to die for their faith, their emperor and their country. Szigeth lies between two rivers, as on an island. When Zrinyi mustered his troop, they amounted to 3000 men. The Turks bombarded, day and night, the "old city," which was but slightly fortified. The besieged made many daring sallies; but, after they had defended the place, inch by inch, and repulsed several assaults, they were obliged to burn it, and to retreat to the "new city." The Turks now raised mounds of earth, from which they could fire over the whole city. Zrinyi made every effort to prevent the Turks from filling up the fosse; but they were too numerous and indefatigable. He now gave up the "new city" to the flames, and threw himself into the castle. The fire of the Turks was incessant, and they were also active in excavating mines. Zrinyi had no miners. The Hungarians made a sally, repulsed the Turks, spiked several of their cannons, but suffered a considerable loss. From August 26 to September 1, seven assaults, or more, were made daily; but the Hungarians always drove back the Turks. Many proposals for capitulation were made to Zrinyi; but he rejected them all; and even the sultan's threat to kill his son, whom the Turks pretended to have in their power, could not change his purpose. Soliman, exasperated at his obstinacy, offered 1000 gold guilders for Zrinyi's head, and finally died of rage, September 4. The grand vizier kept his death a secret. September 5, the Turks succeeded in burning the outer castle. Zrinyi retired to the inner works. These, however, contained no provision nor ammunition. On the seventh, the Turks undertook a general assault. The cinders fell even into the apartments of the count. The castle was in flames. Zrinyi now assembled his followers, and said, "Remember your oath. We must go forth, or burn, or perish with hunger. Let us die like men. Follow me, and do as I do." Saying this, he rushed out: his men, now reduced to 600, followed. He received two balls, but continued fighting until a third ball killed him. The whole garrison shared the fate of their commander. The Turks thronged into the burning castle, but Zrinyi had fired trains leading to the powder chambers. These exploded, and a large number of the enemies perished. Above 20,000 Turks had been killed or died of sickness during the siege. The Turks retained the place until 1689. The aga of the janizaries fixed the head of Zrinyi before the tent of the sultan; but it was afterwards sent to the imperial general count Salm. The family of the Zrinyis became extinct in 1703.

Zschokke, John Henry Daniel, was born in Magdeburg, in Prussia, in 1771. He lost his parents early, and, having received his education in the gymnasium of that city, quitted it suddenly, and remained, for some time, with a strolling troop of actors, for whom he prepared pieces. He subsequently entered the university of Frankfort on the Oder, where he studied, without any regular plan, philosophy, theology, history and belles-lettres. In 1792, he appeared as a public teacher, but was unable to obtain a fixed appointment. Some dramatic productions of his were published. In 1795, he was again disappointed, when he applied for a professorship in the university of Frankfort, having previously written against the religious edict of Wöllner. (q. v.) He now travelled, and, while on his way to Italy, was induced to stay in Switzerland, in order to take the direction of a seminary in Reichenau. During the disturbances which agitated the Helvetic republic in consequence of the French revolution, he received a great variety of appointments, some of an important character. He continues to live in Switzerland. Of his numerous works, we mention his History of the Grisons; Miscellany of the latest Information—a periodical which appeared from 1807 to 1813; his History of the Bavarian People and their Rulers, written from 1812 to 1818, and much esteemed; Contributions to the History of our Time—a periodical begun in 1817, and which ceased in 1823; History of Switzerland for the Swiss People, perhaps his best work, of which 5000 copies were sold immediately in Switzerland alone; Pictures of Switzerland (2 vols., Aaraw, 1824); and a great number of novels, tales, sketches, and small historical pieces. A collection of his writings appeared in 1825 et seq., in forty small volumes.

Zug, the smallest of the Helvetic cantons, lies between the cantons of Zürich, Schweitz, Lucerne and Aargau. It has a superficial area of 116 square miles, and contains 14,710 inhabitants, of German origin, and of the Roman Catholic religion. In regard to its natural characters, it may be divided into two distinct parts, of which the north-western is composed of fertile valleys, and the south-eastern of a mountainous land, in which, however, none of the summits rise above an elevation of 5000 feet, and the descent is gentle. A considerable part of the surface is occupied by lakes Zug and Egeri. The inhabitants are employed almost exclusively in the breeding of cattle, and the cultivation of orchards. The constitution is democratic, the supreme power being exercised by popular representatives in different bodies. The quota of the canton in the army of the confederacy is 250 men, and the pecuniary contingent 1250 Swiss francs. The chief place is the town of the same name, with 2800 inhabitants, on lake Zug, in a delightful situation, at the foot of a mountain of the same name, surrounded by fertile meadows, orchards, vineyards, and pretty country houses. The lake bathes the foot of Righi on the south: behind rises mount Pilate; and, in the distance, the snowy summits of the Bernese Alps are seen towering up into the sky. The lake is about ten miles long and from two to three wide.

Zuiderzee, or **Zuyder-Zee** (i. e. *South sea*); an inland sea or gulf of the North sea, or German ocean, surrounded chiefly by the Dutch provinces of Holland, Overyssel, and Friesland. Its length, from north to south, is about 80 miles; its breadth varies from 15 to 30; superficial area, 1200 square miles. It is said to have been, in remote ages, a lake, until the barrier on the north-west, separating it from the German ocean, was swallowed up by some inundation of the sea. This opinion is confirmed by the position of the islands Texel, Vlieland, &c., which, with intervening shoals and sand-banks, still form a kind of defence against the ocean. The trade of Amsterdam is carried on along the Zuyder-Zee, the entrance to which is at the Texel. The communication of this sea with the lake of Harlem is by the south, the inlet on the banks of which Amsterdam is built. In so level a country there are few rivers to flow into this sea: of those that do so, the Yssel is the largest. The extent of the Zuyder-Zee exposes it to great agitation in tempestuous weather; yet, on proceeding from South Holland to Friesland, it is usual to sail across the southern part of it, called the Lemmer, instead of making the circuit by land. The Y is a gulf of the Zuyder-Zee, which forms the connexion with the lake of Harlem, and of which a part is called the Pampus.

Zuinglius. (See *Zwingli.*)

Züllichau, a town in the government of Frankfort, in the Prussian province of Brandenburg, 112 miles from Berlin, 17 miles east of Crossen, lon. 15° 44′ E., lat. 52° 8′ N., a league from the Oder, has 4700 inhabitants, an academy, an orphan asylum, and a seminary for school-masters. (See *Schools.*) It was formerly a thriving town, having many manufactories of broadcloth, large quantities of which were sent into Poland, Russia, and even China; but, since Russia has protected the Polish manufactures, Züllichau has much declined. The manufacture of silk, however, has in some measure supplied the place of that of cloth. On the banks of the Oder, much wine is made; but its quality is less to be commended than the industry of the cultivators. The town belongs, with the circle of the same name (300 square miles, with 30,000 inhabitants), to the duchy of Crossen, which, in 1538, fell to Brandenburg.

Zumbo. (See *Wax Figures.*)

Zumsteeg, John Rodolphus, a German composer, the son of a servant, was born in 1760, in Sachsenflur, in Würtemberg, and educated in the ducal school near Stuttgart, enjoyed the instruction of the members of the ducal chapel, and, when yet a pupil, composed several operettas, cantatas and songs for the Robbers of Schiller, whose friend he was. He was then appointed violoncellist in the chapel of the duke, and, in 1792, concert-master and director of the opera. He died in 1802, of apoplexy. His songs and glees are some of the best which the Germans possess. He also composed operas and a mass, &c.

Zürich; a canton of Switzerland, bounded north by Schaffhausen, north-east and east by Thurgau, south-east by St. Gall, south by Schweitz and Zug, west by Aargau, and north-west by Baden (see *Switzerland*); square miles, 953; population, 224,150. The general aspect is pleasant, abounding in hills and valleys, but destitute of the magnificent scenery that marks the interior and south of Switzerland. The climate is mild, and the soil is tolerably fertile, and well cultivated. Rich pastures and extensive orchards abound, and, in some parts, there are fine tracts of wooded country. Corn, wine, cattle, butter and cheese are some of the principal products. The manufactures are considerable, of cotton, silk stuffs, linen, woollen and leather. The inhabitants are of German origin, and, with the exception of two societies, are Calvinists. The government, which was aristocratico-democratic in its administration, was new-modelled in 1831. The legislative power was vested in a great council of 212 members, 25 of whom formed an executive council, and court of final appeal.

Zürich; a city of Switzerland, capital of the above canton, on the Limmat, at the north extremity of the lake of Zürich, in a narrow valley, between hills, 36 miles south-west of Constance, 55 north-east of Berne; lon. 8° 32′ E.; lat. 47° 22′ N. It is pleasantly situated, fortified with a wall and ditch, tolerably neat and clean, though most of the houses are old-fashioned. It has four Reformed churches. Its public buildings are not remarkable, but the scenery around is striking, and there are beautiful promenades. There are numerous private gardens; and in no place in Europe, except Haarlem, is more attention paid to fine flowers. Having the advantage of water communication by means of its lake and river, it has long been a place of manufacture and trade. Woollens, linens, cottons, leather and silk are its chief manufactures. Few places of the size of Zürich have surpassed it in the cultivation of literature. For five centuries it has been a town of literary distinction. It has a public library of 40,000 volumes, *collegium humanitatis*, *gymnasium Carolinum*, a school for the deaf and dumb, and one for the blind, a society of physics, economics, and natural history, a military school, a medical seminary, and various other institutions. Natives, Conrad Gesner, Solomon Gesner, John James Gesner, J. C. Lavater, Hirzel, and Pestalozzi. Population, 14,000. Zürich has, in recent times, been the theatre of some interesting political events. In the war carried on by the second coalition against the French republic (1799), Zürich became an important point in the military operation. On the fourth and fifth of June, the archduke Charles gained some advantages over the French forces here, and, on the seventh, occupied Zürich. In August, it became the theatre of new conflicts; and, on the twenty-fourth of September, Masséna defeated here the allied forces of Russia and Austria, and compelled them to evacuate Switzerland.

Zürich; a lake of Switzerland, extending, in the form of a crescent, chiefly through the canton of Zürich, but partly also between those of Schweitz and St. Gall. It is divided into two parts by the strait of Rapperswyl, a quarter of a mile over, crossed by a bridge. In other places, the breadth varies to nearly five miles. The length is thirty miles. This lake, without rivalling that of Geneva in its sublime scenery, is one of the finest in Europe, being surrounded by a populous and well cultivated country, and the prospects on its banks being richly varied. Behind and above the vine-covered hills which enclose it, loftier summits rise gradually higher and higher, till the eye finally rests on the glaciers of Glarus, Schweitz and the Grisons. The prospect is finest from the lake itself, where, as you sail along, the scene is ever shifting and changing. Upon the little island of Ufnau, was formerly seen the tomb of Von Hutten, who died here in 1523.

Zurla, Placidus, cardinal and vicar-general of pope Leo XII, born in the Venetian territory, at Legnago, in 1759, and appointed cardinal May 16, 1823, is known by his scientific labors. He spent several years in investigating the accounts of the discoveries of the Venetian travellers in the thirteenth and fourteenth centuries, who opened the way for Columbus and Vasco da Gama. He published the result of his inquiries in his treatises respecting Marco Polo (who penetrated as far as China, and first brought to Europe information of Japan), and a few other Venetian travellers (2 vols., 4to., with notes on subjects of natural history, by Rossi, 1823). He maintains, in these works, that the brothers Zeno (q. v.) discovered, in the northern parts of the Atlantic, the coasts of Newfoundland, and other parts of America, a hundred years before Columbus, and that the Scandinavian nations maintained an intercourse with the new world as late as 1380, which they had been acquainted with as early as 980 or 1000. The brothers Zeno collected their information on the island of Friseland, which Columbus also is said, by his son, to have visited for the same purpose. Zurla also gives the earliest Venetian chart, which confirms many statements of the Icelandic saga. The cardinal has also written treatises on the travels of Cadamosto and Rionciniotti in Eastern Africa. Zurla has had, for several years, the chief direction of the propaganda. From materials contained in the archives of this society, he prepared a discourse on the advantages which the sciences, particularly geography, owe to the Christian religion (1823).

Zurlite; an imperfectly-described mineral, found in mount Vesuvius, with calcareous spar. It occurs in rectangular prisms, or in botryoidal masses, of an asparagus-green color. It yields to the knife, but emits sparkles with steel. Specific gravity, 3.274; melts with borax into a black glass.

Zurlo, Giuseppe, count de; an Italian politician, born, in 1759, at Naples. In 1783, when an earthquake had devastated many parts of the kingdom, and men of merit were wanted to heal the wounds of the provinces, Zurlo was sent into Calabria. He was afterwards made judge, and, in 1798, was invited to become minister of finance; but he declined the offer. The king, however, when he fled to Sicily, left him in the administration of the finances. The people, entertaining unfounded suspicions against him, seized his person, and destroyed his house. After a few months, when the royal government was reëstablished, he was made minister of finance. The country was inundated with paper money, the credit of the government destroyed, and large sums wanted to meet the public exigencies. Zurlo reëstablished the finances, and refused the rewards offered him for his services, saying that he had always found himself honored by his poverty. In 1803, his ministry came to an end. He refused every offer of the new government, until, in 1809, Joseph made him minister of justice. He did much within the few months that he remained in this office; but the government, wishing to give him a more extended sphere of action, made him minister of the interior. This department required an entire reorganization. Zurlo took the best measures for the promotion of agriculture, manufactures, public instruction, the fine arts, finances, &c. He also put the hospital for the insane, at Aversa, on an excellent footing. On the restoration of the old government, he accompanied the queen (madame Murat) to Trieste, where he separated from her; fell sick in Venice, and, during his recovery, made a translation of Anacreon, which appeared there anonymously. He then lived for three years in Rome, and, in 1818, received permission to return to Naples, where he was made minister of the interior in 1820, but, in consequence of the attacks of fanatics, lost the office within a few months. After that time, he lived as a private man, in Naples, where he died in 1828.

Zurzach; a small town in the canton of Aargau, in Switzerland, with 800 inhabitants; 33 miles east of Basle. Here is a church dedicated to St. Veronica, who is said to have wrought many miracles in Zurzach, and to have been buried there; whence it became a place of pilgrimage much resorted to by devout Catholics. (See *Veronica*.) It still has two fairs, which originated from the former pilgrimages, and are much frequented by German, Italian and French traders.

ZUYDERSEE. (See *Zuidersee.*)

ZWEIBRÜCKEN. (See *Deux-Ponts.*)

ZWINGLI, or (as it is often Latinized) ZUINGLIUS, Ulrich, the Swiss reformer, was a contemporary of Luther, and was born at Wildenhausen, in the Swiss county of Toggenburg, Jan. 1, 1484. Ulrich was the third of eight sons of the bailiff of that place. He studied at an early age in Basle and Berne, and continued his studies in Vienna, where he occupied himself with philosophy, and again in Basle, where he devoted his attention to theology, under the direction of Wyttenbach. In 1506, Zwingli became parish priest at Glarus, and here employed his time, as Luther had done in the Augustine monastery at Erfurt, in the diligent reading of the Holy Scriptures. He copied the letters of Paul in the original Greek, and even learned them by heart—an acquisition which afterwards proved of great service to him in his public discussions. He accompanied the forces of Glarus during the campaigns of 1512, 1513 and 1515, in Lombardy, in the cause of the pope against the French, in the capacity of chaplain, and was rewarded for this service by the grant of a pension from the pope. In 1516, he became preacher in the convent of Einsiedeln, then a celebrated place of pilgrimage. Here he showed a spirit far in advance of the age, raising his voice not only against the corruptions and abuses that had crept into the church, and infected the public morals, but even against the pilgrimages in honor of Our Lady of Einsiedeln, and calling upon the bishops of Sion and Constance to promote a reformation of religious doctrines, in conformity with the dictates of the divine word. At this time, however, his conduct was so far from exciting suspicion, that, in 1518, the papal legate, Pulci, gave him the diploma of acolyte chaplain to the holy see. He was, not long after, invited to Zürich, and entered on his office of preacher in the cathedral, Jan. 1, 1519, with a discourse in which he declared himself for the use of the Scriptures in their genuine form, without regard to the prescribed texts and lessons. At Zürich, Zwingli delivered a series of sermons on the Holy Scriptures; and these discourses, with those against error, superstition and vice, laid the foundation for his future work of reformation. The occasion which called him forth was similar to that which had aroused Luther. In 1518, Bernardin Samson, a Franciscan monk of Milan, appeared in Switzerland, with the intention of raising money by the sale of indulgences. Zwingli, who was then preaching at Einsiedeln, opposed him there, and afterwards in Zürich, with all the power of his eloquence, and brought the indulgences into so much odium that Samson was not even permitted to enter Zürich; and the bishop of Constance, to whom the vile arts of the monk were offensive, supported Zwingli in this measure. From this time, Zwingli gradually went further in his plans, with the approbation not only of the Zurichers, but of the great body of the Swiss in general. In Zürich, his reforms were so far promoted by the government, that, in 1520, a decree was issued, ordering that the Holy Scriptures should be taught without human additions. In 1522, the reformation was extended to external ceremonies. In that year, Zwingli wrote his first work against the fasts of the church, and began the study of Hebrew. The offers of promotion which he received from pope Adrian VI had not power to make him waver. In 1523, the government of Zürich invited all theologians to a public conference in Zürich, to convict, if possible, Zwingli of an error in doctrine. About six hundred persons, clergy and laymen, were present at this disputation. Zwingli exhibited his opinions in the form of sixty-seven propositions, which were to form the subject of discussion; but the objections of the celebrated John Faber, afterwards bishop of Vienna, appeared so unsatisfactory to the magistracy of Zürich, that they adhered still more zealously to the preachings of Zwingli. The second dispute, in which Zwingli urged his objections to images and the mass with such force that the former were soon after removed from the churches, and the latter abolished, was held, in the same year, in the presence of nine hundred persons. In 1524, Zwingli married Anna Reinhard, a widow, and, the next year, published his Commentary on true and false Religion. The reformation in his native land was now fixed upon a firm base; and he continued the work with undiminished zeal, warmly supported by the public authority, which suppressed the mendicant orders, required all questions of marriage to be settled by the civil tribunals, and established a better administration of the church revenues. In general, Zwingli agreed in his opinions with the German reformers: like them he assumed the Bible as the only rule of faith, rejected all human additions, attacked the ambition and rapacity of the clergy, as well as the superstitions they had countenanced, and aimed to restore the church to the simplicity of primitive times. His views were on some points peculiar, particularly in regard to the real presence, and on some less important matters relative to the liturgy. In order to remove this wall of partition from between the two parties which adopted the new doctrines, a meeting between the Saxon and Swiss reformers was held at Marburg (Oct. 1—3, 1529), at the suggestion of Philip the Magnanimous, landgrave of Hesse. The former were represented by Luther and Melanchthon, the latter by Zwingli and Œcolampadius. The conference was conducted with moderation, and the otherwise violent Luther treated Zwingli with a brotherly kindness. Although a complete union was not effected, yet a convention was agreed upon, the thirteen first articles of which, containing the most important matters of religious faith, were recognised by both parties; and the fourteenth declared that, though they could not agree as to the real presence of Christ in the Eucharist, they would conduct towards each in the spirit of Christian charity. In 1531, an open war broke out between Zürich on the one side, and the Catholic cantons of Lucerne, Schweitz, Uri, Underwalden and Zug on the other; and Zwingli was commanded to take the field, bearing the banner of the canton, which it had been usual for an ecclesiastic to support. A battle ensued on the 5th of October, and Zwingli called upon his countrymen "to trust in God." But the enemy were more than twice as strong as the Zurichers, and under better officers: the latter were therefore defeated, and Zwingli was among the slain. The Reformed church (q. v.) afterwards received from the hands of Calvin (q. v.) its present organization.—See Hess, *Vie de Zwingli* (Paris, 1810), and Rotermund, *Life of Zwingli* (in German, Bremen, 1818).—An edition of his works appeared at Zürich in 1819 seq., 4 vols.; and a more complete one has been published at the same place more recently (1828 seq.).

APPENDIX,

CONTAINING, BESIDES THE ARTICLES REFERRED TO IT FROM THE PRECEDING PART OF THE VOLUME, A NUMBER OF SUPPLEMENTARY ARTICLES, AND NUMEROUS REFERENCES TO ARTICLES CONTAINED IN THE BODY OF THE WORK.

Abernethy, John, an eminent English surgeon, was born about 1765; but whether in Ireland or in Scotland he was himself ignorant. It appears, however, that he received his elementary education in England, and commenced his professional studies (1780) at St. Bartholomew's hospital, in London, under the direction of sir Charles Blick, one of the surgeons of that institution. Young Abernethy was at this time more remarked for the oddities of his conversation and manners than for any indications of superior genius, and passed, among his fellow students, by the name of the *ostler*, on account of his attending the lectures in the dress of a groom. Having become the pupil of the celebrated John Hunter (q. v.), Abernethy was appointed, through his influence, assistant-surgeon to Bartholomow's hospital, and, not long after, became lecturer on anatomy and surgery in that establishment. He continued assistant-surgeon of the hospital for nearly forty years, until the death of sir Charles Blick, when he was elected senior surgeon. In 1793, he first appeared as an author, by the publication of his Surgical and Physiological Essays (3d part, 1797), which was followed by Surgical Observations (part 1st, 1804, 2d, 1806). New editions of the latter appeared in 2 vols., 8vo., 1809—11, with additions. These publications, particularly his Observations on Local Diseases and Indigestion, and on Tumors and Lumbar Abscess, established his reputation not only at home but in foreign countries. His account of cases of his tying the iliac artery for aneurism, containing, as it did, striking examples and lucid descriptions of that bold experiment, attracted especial notice and admiration. As a lecturer on surgery, anatomy and pathology, Abernethy held the first rank in London. In his mode of teaching, he was not very minute on anatomy, which he thought could only be learned in the dissecting room; but the energy of his manner, and the allusions he was accustomed to introduce, gave a great interest to what he delivered, and attracted the attention of his pupils. He was particularly earnest in urging upon them that the education of a surgeon is never complete, and that his whole life should be a course of study. He also opposed the division of surgery into distinct departments, as that of the oculist, of the aurist, &c., considering the whole as essentially connected, and that no man, properly educated, can be ignorant of the diseases which those divisions embrace. His treatment of his patients was marked by many eccentricities, which often took the character of harshness and rudeness, although some anecdotes are related of his benevolence and kindness towards those in destitute circumstances. His death took place in 1830. Besides the works already mentioned, Abernethy published an Inquiry into Hunter's Theory of Life (1814); the Introductory Lecture for 1815, exhibiting some of Mr. Hunter's Opinions respecting Diseases; Physiological Lectures (1817), &c.

Abhorrers. (See *Jeffreys, George*.)

Abrantes. (See *Junot.*)

Abyssinian Era. (See *Epoch.*)

Academy Figures. (See *Drawing.*)

Actynolite. (See *Hornblende.*)

Adams, John. (See *Pitcairn Island.*)

Adjournment. (See *Prorogation.*)

Æneas Sylvius. (See *Piccolomini.*)

Agricultural System, in political economy. (See *Physiocratic System.*)

Aguado; a Portuguese Jew, known in consequence of the Spanish stocks which bear his name, his rapid success and great fortune. He first attracted notice after the late campaign of the French in Spain (called in France *promenade en Espagne*), as financial agent for the Spanish government in Paris. He has not, as far as is known, contracted new loans, but has converted the old Spanish *vales* into new stocks, now known as *Aguados*. The liberals reproach him with having procured credit for a government which does not acknowledge the obligations of the cortes. The apostolic party will hear nothing of credit, debts or interest: the king, according to them, ought to live upon the bounty of the priests; and the European contractors have not much confidence in Aguado's paper, because they say that its issue is unlimited, and that even the interest on the same is discharged by means of new Aguados. Yet the interest, thus far, has been paid with great punctuality. The king of Spain has rewarded the services of Aguado by making him a marquis, and heaping honors upon him. Aguado has not been able to effect even a conditional acknowledgment of the loans of the cortes. He was the soul of the financial movements of the moderate royalists, at the head of whom was Ballesteros. The pride of the Spanish grandees, and other circumstances, induced him to lay down his agency in 1830. He is about fifty years old, and is considered to be worth about twenty millions of francs. He resides in Paris, and is personally not popular.

Aids. (See *Tenures.*)

Al; the Arabic article. (See *El.*)

Alban's, Duchess of St. (See *Coutts.*)

Albemarle, Duke of. (See *Monk.*)

Alewife. (See *Herring.*)

Alexandra. (See *Cassandra.*)

Alexandria, Era of. (See *Epoch.*)

Aliment is accidentally placed after *All-Souls.*

Alkaloid. Certain plants, of powerful operation as medicines or poisons, owe this quality to the possession of peculiar ingredients, which modern science has succeeded in separating entirely from the other substances with which they are mixed, and which have been called *alkaloids*, because they resemble the proper alkalies in their mode of acting on vegetable colors, and in their power to neutralize acids, and to form with them salts. Besides these characteristics, which are essential to constitute them alkaloids, most of them have also the following properties: they contain azote, have a white color in their pure state, a bitter taste, a power of crystallizing, an inability to evaporate until dissolved, difficult solubility in water, easy solubility in alcohol, and precipitate their solutions by an infusion of gall-nuts; yet some of them have not all these qualities; for instance, the *conin*, lately extracted by Geiger from hemlock, is distinguished by its volatility and easy solubility in water. The alkaloids have become of great importance in medicine, enabling us to use the effective principles of plants free from all foreign admixture, and in accurately-measured doses, particularly the alkaloids of opium and Peruvian bark. The following alkaloids have been established: Brucine, found in the false Angustura bark, nux vomica, and several other strychnos, cinchonin and quinine in Peruvian bark, coniin in hemlock, corydaline in the root of corydalis tuberosa, emetine in the various species of ipecacuanha, morphia in opium, nicotine in tobacco, solanine in the various species of solanum, strychnia (generally together with brucine) in the St. Ignatius bean, nux vomica, and upas-tieute, veratrine in the seeds of the cevadilla, and in most plants of the family colchiceæ. (See the separate articles.) The narcotic herbs henbane, thorn-apple, deadly nightshade, and some other herbs and barks, seem also to contain alkaloids. The establishment of the class of alkaloids dates from 1816, when Sertürner first declared morphia to be a substance allied to the alkalies. More information will be found in late chemical works, particularly Magendie's Directions for preparing and applying some new Kinds of Medicines.

Allochroite. (See *Garnet.*)

Alluvial Way. (See *Ridge-Road.*)

Althorp, Viscount. (See *Spencer.*)

Amenti. (See *Hieroglyphics.*)

Ameriscoggin. (See *Androscoggin.*)

Ammoniuret of Copper. (See *Copper.*)

Amphigene. (See *Leucite.*)

Amurath, or Murad I, in biography and history, sultan of the Turks, was the son of Orchan, and the brother of Solyman, and succeeded his father, A. D. 1360. In pursuing the conquest of the Greek empire, he subdued, without resistance, the whole province of Romania, or Thrace, from the Hellespont to mount Hæmus, and the verge of the capital, and made choice of Adrianople for the royal seat of his government and religion in Europe. He afterwards marched against the Sclavonian nations, between the Danube and the Adriatic, namely, the Bulgarians, Servians, Bosnians and Albanians; and having vanquished these hardy and warlike tribes, he converted them, by a prudent institution, into the firmest and most faithful supporters of the Ottoman greatness. Being reminded by his vizier that, according to the Mohammedan law, he was entitled to a fifth part of the spoil and captives, and that the duty might be easily levied, by stationing vigilant officers at Gallipoli to watch the passage, he selected for his use the stoutest and most beautiful of the Christian youth, and educated many thousands of the European captives in religion and arms. This new militia was consecrated and named by a celebrated dervise, who, standing in the front of their ranks, stretched the sleeve of his gown over the head of the foremost soldier, and pronounced his blessing in these words: "Let them be called *janizaries* (*yenghi cheri*, or new soldiers). May their countenance be ever bright; their band victorious; their sword keen. May their spear always hang over the heads of their enemies; and, wheresoever they go, may they return with a white face." Such was the origin of the janizaries. By the assistance of these troops, Amurath extended his conquests in Europe and Asia; and he succored the emperor John Palæologus against the Bulgarians. When a rebellion was concerted by the eldest sons of these two sovereigns against their fathers, Amurath punished his own son by depriving him of his sight, and insisted on the same penalty being inflicted on the son of the emperor. After a prolonged course of success, Amurath was opposed by a formidable league of the Walachians, Hungarians, Dalmatians, Triballians and Arnaouts, under the command of Lazarus, prince of Servia. In the battle of Cossova, Lazarus was defeated and taken prisoner; and the league and independence of the Sclavonian tribes was finally crushed. But, as the victor walked over the field, viewing the slain, and triumphing in his success, a Servian soldier started from the crowd of dead bodies, and pierced Amurath, at the moment of his exultation, in the belly, with a mortal wound. Others have attributed his death to a Croat, who is said to have stabbed him in his tent; and this accident was alleged as an excuse for the unworthy precaution of pinioning, as it were, between two attendants, an ambassador's arms, when he was introduced to the royal presence. Amurath died in the seventy-first year of his age, and thirtieth of his reign, A. D. 1389.

Amurath, or Murad II, succeeded his father, Mahomet I, in 1422, at the age of eighteen years. His reign commenced with the capture and death of an impostor, who pretended to be Mustapha, the son of Bajazet, and who was supported by the Greek emperor. He then invested Constantinople; but his attention was diverted by the rebellion of Mustapha, his younger brother, who was imprisoned and strangled in his presence. In 1424, he restored the discipline of the janizaries, and reformed the abuses of the spahis; and, in 1426, he laid waste the isle of Zante, belonging to the Venetians. In the next year, he invaded and subdued the Morea, and obliged the Grecian emperor to pay him tribute; and, having taken Thessalonica, or Saloniki, he compelled the Venetians to make peace. In 1434, he suppressed the rebellion of Karaman-Ogli; and, when a war broke out between the Ottoman empire and the king of Hungary, in which the famous Hungarian general John Hunniades gained several victories, Amurath crossed the Danube, and laid siege to Belgrade; but Hunniades obliged him to raise it. He also invaded and subdued Servia, which was restored in the peace between Hungary and Poland; and, on this occasion, it was stipulated that neither party should cross the Danube in a hostile manner into the dominions of the other. In 1443, at the age of forty years, perceiving the vanity of human greatness, he resigned the empire to his son Mahomet, and retired to Magnesia, where he joined the society of dervises and hermits, and adopted all their austerities and fanatic rites. From this dream of enthusiasm he was soon roused by the Hungarian invasion; and Amurath, urged by the earnest entreaty of his son, and the wishes of the people, consented to take the command of the army. Advancing by hasty marches from Adrianople, at the head of 60,000 men, he met the Christians at Varna. The Turks were victorious, and 10,000 Christians were slain. This battle happened on the 10th of November, A. D. 1444, and was followed by the retirement of Amurath a second time to the stillness and devotion of private life. In 1446, he was again called forth to public service by an insurrection of the janizaries, who filled Adrianople with rapine and slaughter. Having quelled this tumult, he turned his arms against the famous Scanderbeg, prince of Epirus, who had revolted, and followed him to Albania, at the head of 60,000 horse and 40,000 janizaries. The conquests of the sultan were confined to the petty fortress of Sfetigrade; and he retired with shame and loss from the walls of Croya, the castle and residence of the Castriots. Amurath, by the alternative of death or the Koran, converted all the Epirots to his own faith. The Hungarians renewed their invasion of the territories near the Danube; and Amurath fell in with them near Cossova, the place where Amurath I had been victorious. The result of many partial but bloody actions was the rout of the Christian forces, and the capture and imprisonment of Hunniades, the supreme captain and governor of Hungary, in his retreat. Amurath returned to Adrianople. On his arrival, he was seized with a disorder in his head, which terminated his life in the forty-seventh year of his age, and the twenty-ninth of his reign. According to Cantemir, the historian of the Ottoman empire, he lived forty-nine, and reigned thirty years, six months and eight days.

Anaconda. This species of serpent is described under the head *Boa*.

Anaglyphs. (See *Hieroglyphics.*)

Anatase. (See *Titanium.*)

Anchor Making. Referring to the body of the work for a short history and description of this important instrument, in its common form, we shall here give an account of the method hitherto commonly practised of making anchors. Some improvements on the process here described, have been lately introduced in the royal dock-yards of England. Anchors are made by welding small bars of iron into solid masses. This mode is preferable to making a single bar, of sufficient size, by the forge hammer, in the original preparation of the iron, because the compounded bar is not liable to internal flaws, at least not transversely; for the bars are all examined before uniting them: if, therefore, after the welding, any cracks are left between the bars, they must be in the length of the anchor, and will not deduct so materially from the strength of the whole. The bellows are not like those which ordinary smiths make use of; but two large pair of single bellows are placed horizontally by the side of each other, the pipes of both being inserted into the same tue-iron, and directed to blow to the same focus, in the centre of the fire. These bellows are exactly like those in use for domestic purposes, which only throw out air when the upper board is pressed down. The two are worked alternately by means of levers and weights. The parts of the anchor are all made separately, and afterwards united together. The first step, in making the parts, is to assemble or fagot the bars. For the centre of the mass, which is to make the shank, four large bars are first laid together; then upon the flat sides of the square so formed, smaller bars are arranged to make it up to a circle. The number is various; but, in large anchors, six or eight bars are laid on every side: this circle is surrounded by a number of bars arranged like the staves of a cask: as many as thirty-six are often used, and form a complete case for the others. The ends are made up by short bars to a square figure: the fagot is finished by driving iron hoops upon it at sufficient distances; and it is suspended from the crane in such a manner that it can be moved and turned in any direction by only one or two men, even when it weighs three tons. The fire is made up hollow, like an oven. To effect this form, the fireman first spreads the coals evenly upon the hearth, and, with his shovel or slice, makes a flat surface about the level of the tue-hole: he then arranges some large cinders or cakes round in a circle upon this surface, and by other cinders builds it up like an oven or dome, leaving a mouth to introduce the iron. The oven is adapted in size to the magnitude of the mass of iron, and must be brought forwards upon the hearth, to leave a space between its interior cavity and the orifice of the tue-iron, in which space a passage is made from the tue-hole to the fire, and filled up with large lighted coals, and then covered up by small coals. The blast from the bellows passes through these hot coals, in order that the cold air may not enter the fire at once, and blow on the iron, but be first converted into flame, which is urged forcibly into the oven, and is reverberated from the roof and sides upon the iron placed in the centre. As the floor of the oven is nearly upon a level with the tue-hole, the flame from the coals between it and the fire also plays upon the bottom, and thus heats the iron on all sides. The outside of the dome is covered over with a considerable thickness of small coals, which cake together, and, as the inside of the oven consumes, settle down into a dome again, which the smith aids by striking the outside with the flat of his slice. If the fire breaks out at any place in the roof, the smith immediately repairs the breach with fresh coals, and damps them with water, that they may not burn too fast; for, if the inside of the oven burns very fierce, the flames will not be reverberated so forcibly as when it is in the state of burning cake. Care must likewise be taken to prevent the fire burning back to the tue-iron. The mouth of the oven should be made no larger than to admit the work; and, that as little heat as possible may escape by the iron, the mouth is filled round it with coals. All the men unite to assist in blowing the bellows, which they work from half an hour to an hour, according to the size of the anchor, until they have raised the iron to a good welding heat. The mouth of the fire is opened occasionally to inspect the process, and the fagot is turned in the fire, if it is not found to be heating equally in every part. Eight men, and sometimes more, are employed to forge an anchor: six of them strike with the hammers, one is stationed at the guide-bar, and the eighth, who is master, or foreman, directs the others, and occasionally assists to guide the anchor. When the whole of that part which is in the fire comes to a good welding heat, the workmen leave the bellows and take up their hammers: the coals are removed from the iron, which is swung out of the fire by the man who guides it, assisted by others, and the hot end placed on the anvil, during which time, one or two laborers, with birch brooms, sweep off the coals which adhere to it. The smiths now begin hammering, one half the number standing on one side and the other half on the other. They use large sledges, weighing from sixteen to eighteen pounds, and faced with steel, striking in regular order, one after the other, swinging the hammers at arm's length, and all striking nearly at the same place. The foreman places himself near the man who guides, and, with a long wand, points out the part he wishes them to strike, and, at the same time, directs, and sometimes assists, the guide to turn the fagot round, so as to bring that side uppermost which requires to be hammered. This is continued as long as the metal retains sufficient heat for welding. This process is exceedingly laborious for the workmen, and is much more effectually performed by means of the Hercules, a machine resembling a pile-driver, which strikes such powerful blows upon the iron as to consolidate the bars much more than the strokes of small hammers can do, however long they may be continued. When the iron has lost so much of the heat that it will no longer weld, the foreman takes a number of pins, made like very thick nails without heads: one of these he holds in the end of a cleft stick, places its point upon the iron, and two smiths, with their sledges, strike on it with all their force, to drive it through the bars; but this they must do quickly, or the pins will become hot and soft, so as not to penetrate the bar. These pins are intended to hold the whole together more firmly, and, by swelling out the sides, to fill up any small spaces there may be between the bars. The iron is now returned to the fire, another mouth being opened on the opposite side of the oven, to admit the end or part which has been welded to come through, that a part farther up the fagot may be heated; and, when this is done, the welding is performed in the same manner as before. Thus, by repeated heatings, the fagot is made into one solid bar, of the size and length intended. It is then hammered over again at welding heats to finish it, and make an even surface; and, in this second operation, the workmen do not leave off hammering as soon as the iron loses its full welding heat, but continue till it turns almost black. This renders the surface solid and hard, and closes all small pores at which the sea-water might enter, and, by corroding the bars, expand them, and, in time, split open the mass of iron. The shank for an anchor is made larger at the lower end, where the arms are to be welded to it, and is of a square figure. A sort of rebate, or scarf, is here formed on each side the square, in order that the arms may apply more properly for welding. This scarf is made in the original shape of the fagot, and finished by cutting away some of the metal with chisels while it is hot, and using sets or punches properly formed to make a square angle to the shoulder of the scarf. The upper end of the shank is likewise square, and the length between these square parts is worked either to an octagon or round, tapering regularly from the lower to the upper end. The hole to receive the ring of the anchor is pierced through the square part at the upper end, first by a small punch; and then larger ones are used, till it is sufficiently enlarged. The punch is made of steel; and, when it is observed to change color by the heat, it is struck on the opposite end to drive it out, and is instantly dipped in water to cool it, and another driven in. The projecting pieces, or nuts, which are to keep the stock, or wooden beam, of the anchor, in its place on the shank, are next welded on. To do this, the shank is heated, and, at the same time, a thick bar is heated in another forge: the end of this is laid across the shank, and the men hammer it down to weld it to the shank; then the piece is cut off by the chisel, and another piece welded on the opposite side. While this process of forging the shank is going on, the smiths of another forge, placed as near as convenient to the former, are employed in making the arms, which are made from fagots in the same manner as the shank, but of less size, and shorter. They are made taper, one end of each being smaller than the other: the larger ends are made square, and cut down with scarfs, to correspond with those at the lower end of the shank. The middle parts of the arms are rounded, and the outer extremities are cut away as much as the thickness of the flukes, or palms, that the palms may be flush with the upper sides when they are welded on. The flukes are generally made at the iron forges in the country, by the forge hammer, but, in some yards, are made by fagoting small bars, leaving one long one for a handle. When finished, they are welded to the arms. The next business is to unite the arms to the end of the shank; and, in doing this, particular care is necessary, as the goodness of the anchor is entirely dependent upon its being effectually performed. In so large a weld, the outside is very liable to be welded, and make a good appearance, while the middle part is not united. To guard against this, both surfaces of the scarfs should be rather convex, that they may be certain to touch in the middle first. When the other arm is welded, the anchor is complete, except the ring, which is made from several small bars welded together, and drawn out into a round rod, then bent to a circle, put through the hole in the shank, and its ends welded together. If the shank, or other part, is crooked, it is set straight by heating it in the crooked part, and striking it over the anvil, or by the Hercules. After all this, the whole is heated, but not to a white heat, and the anchor hammered in every part, to finish and make its surface even: this is done by lighter hammers, worked by both hands, but not swung over the head. This operation renders the surface of the metal hard and smooth; and, if very effectually performed, the anchor will not rust materially by the action of the sea-water. The hammering is continued till the iron is quite black, and almost cold. It is common with some manufacturers, after they have made up the shank, to heat it again, and apply the end of a thin flat bar, properly heated, upon it; then, by turning the large shank round, the bar is wound spirally upon it, so as to form a complete covering to the whole. This method admits of employing a kind of iron which is less liable to corrosion; but, we fear, it is sometimes resorted to, to conceal the bad qualities of the iron of which the anchor is composed. A good anchor should be formed of the toughest iron that can be procured.

Andréossy. General Andréossy died in 1828, having previously been chosen a member of the chamber of deputies.

Angina Pectoris; an acute, constrictory pain at the lower end of the sternum, inclining rather to the left side, and extending up into the left arm, accompanied with great anxiety. Violent palpitations of the heart, laborious breathings, and a sense of suffocation, are the characteristic symptoms of this disease. It is found to attack men much more frequently than women, particularly those who have short necks, who are inclinable to corpulency, and who, at the same time, lead an inactive and sedentary life. Although it is sometimes met with in persons under the age of twenty, still it more frequently occurs in those who are between forty and fifty. In slight cases, and in the first stage of the disorder, the fit comes on by going up hill, up stairs, or by walking at a quick pace after a hearty meal; but, as the disease advances, or becomes more violent, the paroxysms are apt to be excited by certain passions of the mind, by slow walking, by riding on horseback or in a carriage, or by sneezing, coughing, speaking, or straining at stool. In some cases, they attack the patient from two to four in the morning, or while sitting or standing, without any previous exertion or obvious cause. On a sudden, he is seized with an acute pain in the breast, or rather at the extremity of the sternum, inclining to the left side, and extending up into the arm, as far as the insertion of the deltoid muscle, accompanied by a sense of suffocation, great anxiety, and an idea that its continuance or increase would certainly be fatal. In the first stage of the disease, the uneasy sensation at the end of the sternum, with the other unpleasant symptoms, which seemed to threaten a suspension of life by a perseverance in exertion, usually go off upon the person's standing still, or turning from the wind; but, in a more advanced stage, they do not so readily recede, and the paroxysms are much more violent. During the fit, the pulse sinks, in a greater or less degree, and becomes irregular; the face and extremities are pale, and bathed in a cold sweat, and, for a while, the patient is perhaps deprived of the powers of sense and voluntary motion. The disease having recurred more or less frequently during the space of some years, a violent attack at last puts a sudden period to existence. Angina pectoris is attended with a considerable degree of danger; and it usually happens that the person is carried off suddenly. It mostly depends upon an ossification of the coronary arteries; and then we can never expect to effect a radical cure. During the paroxysms, considerable relief is to be obtained from fomentations, and administering powerful antispasmodics, such as opium and ether combined together. The application of a blister to the breast is likewise attended sometimes with a good effect. As the painful sensation at the extremity of the sternum often admits of a temporary relief, from an evacuation of wind by the mouth, it may be proper to give frequent doses of carminatives, such as peppermint, caraway or cinnamon water. When these fail in the desired effect, a few drops of *ol. anisi*, on a little sugar, may be substituted. With the view of preventing the recurrence of the disorder, the patient should carefully guard against passion, or other emotions of the mind: he should use a light, generous diet, avoiding every thing of a heating nature; and he should take care never to overload the stomach, or to use any kind of exercise immediately after eating. Besides these precautions, he should endeavor to counteract obesity, which has been considered as a predisposing cause: and this is to be effected most safely by a vegetable diet, moderate exercise at proper times, early rising, and keeping the body perfectly open.

ANGLICAN CHURCH. (See *England, Church of.*)

ANIMAL MECHANICS. *Mechanism of the human Skeleton.* There is scarcely a part of the animal body, or an action which it performs, or an accident that can befall it, or a piece of professional assistance which can be given to it, that does not furnish illustration of some truth of natural philosophy; but we shall here only touch upon as many particulars as will make the understanding of others easy.

The *cranium*, or *skull*, is an instance of the arched form, answering the purpose of giving strength. The brain, in its nature, is so tender, or susceptible of injury, that slight local pressure disturbs its action. Hence a solid covering, like the skull, was required, with those parts made stronger and thicker which are most exposed to injury. An architectural dome is constructed to resist one kind of force only, always acting in one direction, namely, gravity; and therefore its strength increases regularly towards the bottom, where the weight and horizontal thrust of the whole are to be resisted; but, in the skull, the tenacity of the substance is many times more than sufficient to resist gravity, and therefore aids the form to resist forces of other kinds, operating in all directions. When we reflect on the strength displayed by the arched film of an egg-shell, we need not wonder at the severity of blows which the cranium can withstand.

Through early childhood, the cranium remains, to a certain degree, yielding and elastic; and the falls and blows so frequent during the lessons of walking, &c., are borne with impunity. The mature skull consists of two layers, or tables, with a soft diploe between them, the outer table being very tough, with its parts dove-tailed into each other, as tough wood would be by human artificers; while the inner table is harder, and more brittle (hence called *vitreous*), with its edges merely lying in contact, because its brittleness would render dove-tailing useless.

A very severe partial blow on the skull generally fractures and depresses the part, as a pistol bullet would; while one less severe, but with more extended contact, being slowly resisted by the arched form, often injures the skull by what is correspondent to the horizontal thrust in a bridge, and causes a crack at a distance from the place struck, generally half way round to the opposite side. Sometimes, in a fall with the head foremost, the skull would escape injury, but for the body, which falls upon it, pressing the end of the spine against its base.

In the *lower jaw*, we have to remark the greater mechanical advantage, or lever power, with which the muscles act, than in most other parts of animals. The temporal and masseter muscles pull almost directly, or at right angles to the line of the jaw; while in most other cases, as in that of the deltoid muscle lifting the arm, the muscles act very obliquely, and with power diminished in proportion to the obliquity. An object placed between the back teeth is compressed with the whole direct power of the strong muscles of the jaw: hence the human jaw can crush a body which offers great resistance, and the jaws of the lion, tiger, shark, and crocodile, &c., are stronger still.

The *teeth* rank high among those parts of the animal body which appear almost as if they were severally the fruits of distinct miraculous agencies, so difficult is it to suppose a few simple laws of life capable of producing the variety of form so beautifully adapted to purposes which they exhibit. They constitute an extraordinary set of chisels and wedges, so arranged as to be most efficient for cutting and tearing the food, and, with their exterior enamel, so hard that, in early states of society, teeth were made to answer many purposes for which steel is now used. It seems, however, as if the laws of life, astonishing as they are, had still been inadequate to cause teeth, cased in their hard enamel, to grow as the softer bones grow; and hence has arisen a provision more extraordinary still. A set of small teeth appear soon after birth, and serve the child until six or seven years of age: these then fall out, and are replaced by larger ones, which endure for life; the number being completed only when the man or woman is full-grown, by four teeth, called *wisdom teeth*, because they come so late, which rise to fill up the then spacious jaw.

The *spine*, or *back-bone*, has, in its structure, as much of beautiful and varied mechanism as any single part of our wonderful frame. It is the central pillar of support, or great connecting chain of all the other parts; and it has, at the same time, the office of containing within itself, and of protecting from external injury, a prolongation of the brain, called the *spinal marrow*, more important to animal life than the greater part of the brain itself. We shall see the spine uniting the apparent incompatibilities of great elasticity, great flexibility in all directions, and great strength, both to support a load and to defend its important contents.

Elasticity. The head may be said to rest on the elastic column of the spine, as the body of a carriage rests upon its springs. Between each two of the twenty-four vertebræ, or distinct bones, of which the spine consists, there is a soft, elastic intervertebral substance, about half as bulky as a vertebra, yielding readily to any sudden jar; and the spine, moreover, is waved, or bent a little, like an italic *ƒ*, as seen when it is viewed sideways; and, for this reason, also, it yields to any sudden pressure operating from either end. The bending might seem a defect in a column intended to support weight; but the disposition of the muscles around is such as to leave all the elasticity of the bend and a roomy thorax, without any diminution of strength.

Flexibility. The spine may be compared to a chain, because it consists of twenty-four distinct pieces, joined by smooth rubbing surfaces, so as to allow of motion in all directions; and a little motion, comparatively, between each two adjoining pieces, becomes a great extent of motion in the whole line. The articulating surfaces are so many, and so exactly fitted to each other, and are connected by such number and strength of ligaments, that the combination of pieces is really a stronger column than a single bone of the same size would be.

The strength of the spine, as a whole, is shown in a man's easily carrying upon his head a weight heavier than himself, while each separate vertebra is a strong irregular ring, or double arch, surrounding the spinal marrow. The spine increases in size towards the bottom, in the justest proportion, as it has more weight to bear.

The Ribs. Attached to twelve vertebræ, in the middle of the back, are the ribs, or bony stretchers of the cavity of the chest, constituting a structure which solves, in the most perfect manner, the difficult mechanical problem of making a cavity with solid exterior, which shall yet be capable of dilating and contracting itself. Each pair of corresponding ribs may be considered as forming a hoop, which hangs obliquely down from the place of attachment behind; and so that, when the fore part of all the hoops is lifted by the muscles, the cavity of the chest is enlarged.

We have to remark the double connexion of the rib behind, first to the bodies of two adjoining vertebræ, and then to a process or projection from the lower, thus effecting a very steady joint, and yet leaving the necessary freedom of motion; and we see the fore part of the rib to be of flexible cartilage, which allows the degree of motion required there, without the complexity of a joint, and admirably guards, by its elasticity, against the effects of sudden blows or shocks.

The muscles which have their origin on the ribs, and their insertion into the bones of the arm, afford us an example of action and reaction being equal and contrary. When the ribs are fixed, these muscles move the arm; and, when the arm is fixed, by resting on a chair or other object, they move the ribs. This is seen in fits of asthma and dyspnea.

The *shoulder-joint* is remarkable for combining great extent of motion with great strength. The round head of the shoulder-bone rests upon a shallow cavity in the shoulder-blade, that it may turn freely in all ways; and the danger of dislocation from this shallowness is guarded against by two strong bony projections above and behind. To increase the range of motion to the greatest possible degree, the bone called the shoulder-blade, which contains the socket of the arm, slides about itself upon the convex exterior of the chest having its motion limited only by a connexion, through the collar-bone, or clavicle, with the sternum.

The *scapula*, or *blade-bone*, is extraordinary as an illustration of the mechanical rules for combining lightness with strength. It has the strength of the arch, from being a little concave, and its substance is chiefly collected in its borders and spines, with thin plates between, as the strength of a wheel is collected in its rim, and spokes, and nave.

The bones of the arms, considered as levers, have the muscles which move them attached very near to the fulcra, and very obliquely; so that, from working through a short distance comparatively with the resistances overcome at the extremities, the muscles require to be of great strength. It has been calculated that the muscles of the shoulder-joint, in the exertion of lifting a man upon the hand, pull with a force of two thousand pounds.

The *os humeri*, or bone of the upper arm, is not perfectly cylindrical; but, like most of the other bones which are called cylindrical, it has ridges to give strength, on the principle explained in the article *Strength of Materials*, in this Appendix.

The *elbow-joint* is a correct hinge, and so strongly secured, that it is rarely dislocated without fracture.

The *fore-arm* consists of two bones, with a strong membrane between them. Its great breadth, from this structure, affords abundant space for the origin of the many muscles that go to move the hand and fingers; and the very peculiar mode of connexion of the two bones, give man that most useful faculty of turning the hand round, into what are called the positions of pronation and supination, exemplified in the action of twisting, or of turning a gimlet.

The Wrist. The many small bones forming this, have a signal effect of deadening, in regard to the parts above, the shocks or blows which the hand receives.

The *annular ligament* is a strong band passing round the joint, and keeping all the tendons which pass from the muscles above to the fingers, close to the joint. It answers the purpose of so many fixed pulleys for directing the tendons: without it, they would all, on action, start out like bow-strings, producing deformity and weakness.

The *human hand* is so admirable, from its numerous mechanical and sensitive capabilities, that an opinion at one time commonly prevailed, that man's superior reason depended on his possessing such an instructer and such a servant. Now, although reason, with hoofs instead of fingers, could never have raised man much above the brutes, and probably could not have secured the continued existence of the species, still the hand is no more than a fit instrument of the godlike mind which directs it.

The *pelvis*, or strong irregular ring of bone, on the upper edge of which the spine rests, and from the sides of which the legs spring, forms the centre of the skeleton. A broad bone was wanted here to connect the central column of the spine with the lateral columns of the legs; and a circle was the lightest and strongest. If we attempt still further to conceive how the circle could be modified to fit it for the spine to rest on, for the thighs to roll in, for muscles to hold by, both above and below, for the person to sit on, we shall find, on inspection, that all our anticipations are realized in the most perfect manner. In the pelvis, too, we have the thyroid hole and ischiatic notches, furnishing subordinate instances of contrivance to save material and weight: they are merely deficiencies of bone where solidity could not have given additional strength. The broad ring of the pelvis protects most securely the important organs placed within it.

The *hip-joint* exhibits the perfection of the ball and socket articulation. It allows the foot to move round in a circle, as well as to have the great range of backward and forward motion exhibited in the action of walking. When we see the elastic, tough, smooth cartilage which lines the deep socket of this joint, and the similar glistening covering of the ball or head of the thigh-bone, and the lubricating synovia poured into the cavity by appropriate secretories, and the strong ligaments giving strength all around, we feel how far the most perfect of man's works falls short of the mechanism displayed by nature.

The *thigh-bone* is remarkable for its projections called *trochanters*, to which the moving muscles are fixed, and which lengthen considerably the lever by which the muscles work. The shaft of the bone is not straight, but has a considerable forward curvature. Short-sightedness might suppose this a weakness, because the bone is a pillar supporting a weight; but the bend gives it, in reality, the strength of the arch, to bear the action of the mass of muscle called *vastus*, which lies and swells upon its fore part.

The *knee* is a hinge joint of complicated structure; and it claims the most attentive study of the surgeon. The rubbing parts are flat and shallow, and therefore the joint has little strength from form; but it derives security from the numerous and singularly-strong ligaments which surround it. The ligaments on the inside of the knees resemble, in two circumstances, the annular ligaments of joints, namely, in having a constant and great strain to bear, and yet in becoming stronger always as the strain increases. The line of the leg, even in the most perfect shapes, bends inward a little at the knee, requiring the support of the ligaments, and, in many persons, it bends very much; but the inclination does not increase with age. The legs of many weakly in-kneed children become straight by exercise alone. This inclination at the middle joint of the leg, by throwing a certain strain on the ligaments, gives an increase of elasticity to the limb, in the actions of jumping, running, &c. In the knee, there is a singular provision of loose cartilages, which have been called *friction* cartilages, from a supposed relation in use to friction wheels; but their real effect seems to be to accommodate, in the different positions of the joint, the surfaces of the rubbing bones to each other.

The great muscles on the fore part of the thigh are contracted into a tendon a little above the knee, and have to pass over, and, in front of the knee, to reach the top of the leg, where their attachment is. The tendon, in passing over the joint, becomes bony, and forms the *patella*, or *knee-pan*, often called the *pulley* of the knee. This peculiarity enables the muscles to act more advantageously, by increasing the distance of the rope from the centre of motion. The patella is, moreover, a sort of shield or protection to the fore part of this important joint. The leg below the knee, like the fore-arm already described, has two bones. They offer spacious surface of origin for the numerous muscles required for the feet, and they form a compound pillar of greater strength than the same quantity of bone as one shaft would have had. The individual bones also are angular instead of round, hence deriving greater power to resist blows, &c.

The *ankle-joint* is a perfect hinge of great strength. There is in front of it an annular ligament, by which the greater part of the tendons, passing downwards to the foot and toes, are kept in their places. One of these tendons passes under the bony projection of the inner ankle, in a smooth appropriate groove, exactly as if a little fixed pulley were there.

The *heel*, by projecting so far backwards, is a lever for the strong muscles to act by, which form the calf of the leg, and terminate in the *tendo achillis*. These muscles, by drawing at it, lift the body, in the actions of standing on the toes, walking, dancing, &c. In the foot of the negro, the heel is so long as to be ugly in European estimation; and, its great length rendering the effort of smaller muscles sufficient for the various purposes, the calf of the leg in the negro is smaller in proportion than in other races of men.

The *arch of the foot* is to be noticed as another of the many provisions for saving the body from shocks by the elasticity of the supports. The heels and the balls of the toes are the two extremes of the elastic arch, and the leg rests between them.

Connected with elasticity, it is interesting to remark how imperfectly a wooden leg answers the purpose of a natural leg. With the wooden leg, which always remains of the same length, the centre of the body must describe, at each step, a portion of a circle of which the bottom nob of the leg is the centre, and the body is therefore constantly rising and falling; while, with the natural legs, which, by gentle flexure at the knee, are made shorter or longer in different parts of the step, as required, the body is carried along in a manner perfectly level. In like manner, a man riding on horseback, if he keep his back upright and stiff, has his head jolted by every step of the trotting animal;

but the experienced horseman, even without rising in the stirrups, by letting the back yield a little at each movement, as a bent spring yields during the motion of a carriage, can carry his head quite smoothly along.

In a general review of the skeleton, we have to remark, 1. the nice adaptation of all the parts to each other, and to the strains which they have respectively to bear; as in the size of the spinal vertebræ increasing from above downwards; the bones of the leg being larger than those of the arm, and so on. 2. The objects of strength and lightness combined; as by the hollowness of the long bones; their angular form; their thickening and flexures in particular places where great strain has to be borne; the enlargement of the extremities to which the muscles are attached, lengthening the lever by which these act, &c. 3. We have to remark the nature and strength of material in different parts, so admirably adapted to the purposes which the parts serve. There is a bone, for instance, in one place, nearly as hard as iron, where, covered with enamel, it has the form of teeth, with the office of chewing and tearing all kinds of matter used as food. In the cranium, again, bone is softer, but tough and resisting; in the middle of long bones, it is compact and little bulky, to leave room for the swelling of the muscles lying there; while, at either end, it is large and spongy, with the same quantity of matter, to give a broad surface for articulation; and, in the spine, the bodies of the vertebræ, which rest on an elastic bed of intervertebral substance, are light and spongy, while their articulating surfaces and processes are very hard. In the joints, we see the tough, elastic, smooth substance, called *cartilage*, covering the ends of the bones, defending and padding them, and destroying friction. In infants, we find all the bones soft or gristly, and therefore calculated to bear, with impunity, the falls and blows unavoidable at their age; and we see certain parts remaining cartilage or gristle for life, where their elasticity is necessary or useful, as at the anterior extremities of the ribs. About the joints, we have to remark the ligaments which bind the bones together, possessing a tenacity scarcely equalled in any other known substance; and we see that the muscular fibres, whose contractions move the bones, and thereby the body,—because they would have made the limbs clumsy even to deformity had they all passed over the joints to the parts which they have to pull,—attach themselves, at convenient distances, to a strong cord called a *tendon*, by means of which, like a hundred sailors at a rope, they make their effort effective at any distance. The tendons are remarkable for the great strength which resides in their slender forms, and for the lubricated smoothness of their surfaces. Many other striking particulars might be enumerated; but these may suffice. Such, then, is the skeleton, or general frame-work of the human body—less curious and complicated, perhaps, than some other parts of the system, but so perfect and so wonderful, that the mind which can attentively consider it without emotion, is in a state not to be envied.

The living force of man has been used as a working power in various ways, as in turning a winch, pulling at a rope, walking in the inside of a large wheel to move it, as a squirrel or turn-spit dog moves his little wheel, &c. Each of these has some particular advantage; but that mode in which, for many purposes, the greatest effect may be produced, is for the man to carry up to a height his body only, and then to let it work by its weight in descending. A bricklayer's laborer would be able to lift twice as many bricks to the top of a house in the course of a day, by ascending a ladder without a load, and raising bricks of nearly his own weight over a pulley each time in descending, as he can by carrying bricks and himself up together, and descending again without a load, as is still usually done.

Reflection would naturally anticipate the above result, independently of experiment; for the load which a man should be best able to carry, is surely that from which he can never free himself—the load of his own body. Accordingly, the strength of muscles and disposition of parts are all such as to make his body appear light to him.

The question which was agitated with such warmth some time ago, as to the propriety of making men and women work on the tread-mill, receives an easy decision here. They work by climbing on the outside of a large wheel or cylinder, which is turning by their weight, and on which they must advance just as fast as it turns, to avoid falling from their proper situation. There are projections or steps for the feet on the outside of the cylinder, and the action to the workers is exactly that of ascending an acclivity. Now, as nature has fitted the human body for climbing hills, as well as for walking on plains, the work of the tread-mill, under proper restrictions as to duration, must be as natural and healthful as any other. Its effects have now proved it to be so.

As animal power is exhausted exactly in proportion to the time during which it is acting, as well as in proportion to the intensity of force exerted, there may often be a great saving of it by doing work quickly, although with a little more exertion during the time. Suppose two men of equal weight to ascend the same stair, one of whom takes only a minute to reach the top, and the other takes four minutes; it will cost the first but a little more than a fourth part of the fatigue which it costs the second, because the exhaustion has relation to the time during which the muscles are acting. The quick mover may have exerted, perhaps, one twentieth more force in the first instant, to give his body the greater velocity which was afterwards continued; but the sloth supported his load four times as long.

A healthy man will run rapidly up a long stair, and his breathing will scarcely be quickened at the top; but, if he walk up slowly, his legs will feel fatigued, and he will have to wait some time before he can speak calmly.

For the same reason, coach-horses are much spared by being made to gallop up a short hill, and being then allowed to go more slowly for a little time, so as to rest at the top.

The rapid waste of muscular strength, which arises from continued action, is shown by keeping the arm extended horizontally for some time: few can continue the exertion beyond a minute or two. In animals which have long horizontal necks, there is a provision of nature in a strong elastic substance on the back, or upper part of the neck, which nearly supports the head, independently of muscular exertion.

Anisette. (See *Liqueur.*)

Annotta. (See *Arnatto.*)

Anspach, Margravine of. (See *Craven, Lady.*)

Antioch, Era of. (See *Epoch.*)

Antommarchi; physician of Napoleon at St. Helena. He is a native of Corsica, who left a professorship of anatomy in Florence, in order to attend the exiled emperor. Cardinal Fesch offered him a pension; but he refused it. He attended the emperor till his last moments; and a legacy of 100,000 francs was left him in his will. He was also charged, in the same, to open the body; but sir Hudson Lowe would not permit it. After his return to Europe, he published, in 1825, in Paris, a description of Napoleon's last moments. This work, as well as those of O'Meara and Las Cases, are important contributions to the history of the emperor. Antommarchi afterwards practised medicine in Paris, and completed his beautiful but very expensive anatomical plates, which he had previously commenced with Morgagni in Florence. When Poland was visited by the horrors of war, he hastened thither, leaving his lucrative practice and scientific labors. With considerable trouble he reached Warsaw, where the national government gave him the direction of the medical establishments. Still more difficulties were thrown in his way on his return from Poland, especially in Hesse-Cassel, ostensibly on account of his coming from a country infested with cholera, but in reality on account of his political principles. After his return to Paris, he was near being sent by Périer to Avignon with the Poles. Towards the end of 1831, he left Paris and went to Italy. He possesses a plaster cast of Napoleon, made from a mask taken immediately after his death.

Aphides, or Vine-Fretters. (See *Ants.*)

Aplome. (See *Garnet.*)

Arbalist. (See *Cross-Bow.*)

Arborizations. (See *Dendrites.*)

Arcopolis. (See *Little Rock.*)

Arctic Seas. (See *North Polar Expeditions.*)

Argentine Republic. An account of this state will be found under the head of *Plata, United Provinces of the.*

Arquebuss. (See *Harquebuss.*)

Arrow-Head Character. (See *Persepolis*, and *Writing.*)

Artigas. We have to add to the account given of this general, that he was retained prisoner by doctor Francia, who treated him, at the same time, with great kindness, and provided for his comfortable support. He died in 1826.

Arundel, Earl of. (See *Howard, Thomas.*)

Arzerum. (See *Erzerum.*)

Ascites. (See *Dropsy.*)

Ashburton, Lord. (See *Dunning.*)

Asna. (See *Esneh.*)

Asthma (*asthma*, Latin; from ἀσθμαζω. to breathe with difficulty); difficulty of respiration, returning at intervals, with a sense of stricture across the breast and in the lungs, a wheezing, hard cough, at first, but more free towards the close of each paroxysm, with a discharge of mucus, followed by a remission.—Asthma rarely appears before the age of puberty, and seems to attack men more frequently than women, particularly those of a full habit, in whom it never fails, by frequent repetition, to occasion some degree of emaciation. In some instances, it arises from a hereditary predisposition; and in many others, it seems to depend upon a particular constitution of the lungs. Dyspepsia always prevails, and appears to be a very prominent feature in the predisposition. Its attacks are most frequent during the heats of summer, in the dog-days, and in general commence about midnight. On the evening preceding an attack of asthma, the spirits are often much affected, and the person experiences a sense of fulness about the stomach, with lassitude, drowsiness, and a pain in the head. On the approach of the succeeding evening, he perceives a sense of tightness and stricture across the breast, and a sense of straitness in the lungs, impeding respiration. The difficulty of breathing continuing to increase for some length of time, both inspiration and expiration are performed slowly, and with a wheezing noise; the speech becomes difficult and uneasy; a propensity to coughing succeeds, and the patient can no longer remain in a horizontal position, being as it were threatened with immediate suffocation. These symptoms usually continue till towards the approach of morning, and then a remission commonly takes place; the breathing becomes less laborious and more full, and the person speaks and coughs with greater ease. If the cough is attended with an expectoration of mucus, he experiences much relief, and soon falls asleep. When he awakes in the morning, he still feels some degree of tightness across his breast, although his breathing is probably more free and easy, and the least motion renders this more difficult and uneasy; neither can he continue in bed, unless his head and shoulders are raised to a considerable height. Towards evening, he again becomes drowsy, is much troubled with flatulency in the stomach, and perceives a return of the difficulty of breathing, which continues to increase gradually, till it becomes as violent as on the night before. After some nights passed in this way, the fits at length moderate, and suffer more considerable remissions, particularly when they are attended by a copious expectoration in the mornings; and this continues from time to time throughout the day; and, the disease going off at last, the patient enjoys his usual rest by night, without further disturbance. The exciting causes are various:—accumulation of blood or viscid mucus in the lungs, noxious vapors, a cold and foggy atmosphere, or a close, hot air, the repulsion of eruptions, or other metastatic diseases, flatulence, accumulated feces, violent passions, organic diseases in the thoracic viscera, &c. Sometimes the fits return at pretty regular periods; and it is generally difficult to obviate future attacks, when it has once occurred: but it often continues to recur for many years, and seldom proves fatal, except as inducing hydrothorax, phthisis, &c. The treatment must vary according to the form of the disease. By far the most important part of the treatment consists in obviating or removing the several exciting causes, whether operating on the lungs immediately, or through the medium of the primæ viæ, &c. Individual experience can alone ascertain what state of the atmosphere, as to temperature, dryness, purity, &c., is most beneficial to asthmatics, though a good deal depends on habit in this respect; but a due regulation of this, as well as of the diet, and other parts of regimen, will usually afford more permanent relief than any medicines we can employ.

Astrometer. (See *Heliometer*.)

Atomic Theory, *in chemistry*. Two opposite opinions have long existed concerning the ultimate elements of matter. It is supposed, according to one party, that every particle of matter, however small, may be divided into smaller portions, provided our instruments and organs were adapted to the operation. Their opponents contend, on the other hand, that matter is composed of certain atoms, which are of such a nature as not to admit of further division. These opposite opinions have, from time to time, been keenly contested, and with variable success, according to the acuteness or ingenuity of their respective champions. But it was at last perceived that no positive data existed capable of deciding the question; and its interest, therefore, gradually declined. The progress of modern chemistry has revived the general attention to this controversy, by affording a far stronger argument in favor of the atomic constitution of bodies than was ever advanced before, and which seems almost irresistible. We have only, in fact, to assume, with Mr. Dalton, that all bodies are composed of ultimate atoms, the weight of which is different in different kinds of matter, and we explain at once various laws of chemical union. According to this view, every compound is formed by a combination of the atoms of its constituents. An atom of A may combine with 1, 2, 3, or more atoms of B—an arrangement on which depends the law of multiples. If water, for example, is composed of an atom of hydrogen and an atom of oxygen, it follows that every compound of hydrogen with an additional quantity of oxygen, must contain 2, 3, or more atoms of oxygen; some multiple in a word by a whole number of the quantity of oxygen contained in water. It is equally clear, from this view of the composition of water, that the weight of an atom of oxygen is eight times heavier than an atom of hydrogen. The relative weight of the atoms of other substances may be determined in a similar manner. Thus an atom of carbon is 6 times, an atom of sulphur 16 times, and an atom of chlorine 36 times, heavier than an atom of hydrogen; and this explains why they unite with one another in the proportions expressed by those numbers. What are called the *proportional numbers* are, in fact, nothing else but the relative weights of atoms. No one can suppose that the laws of chemical union are the effect of chance: there must be some cause for them in the nature of the ultimate particles of matter. This cause, as we have just seen, is completely supplied by the supposed atomic constitution of bodies, which accounts for the phenomena in the most beautiful and consistent manner. So perfect, indeed, is the explanation, that the existence of these laws might have been predicted by the aid of the atomic hypothesis long before they were actually discovered by analysis. But these are not the only arguments which we at present possess in favor of the existence of ultimate indivisible particles of matter. Doctor Wollaston, in his paper on the Finite Extent of the Atmosphere (*Philosophical Transactions*, 1822), has defended this side of the question on a new and independent principle; and the proof he has given of the atomic constitution of bodies appears decisive. Some chemists, even without expressly adopting the atomic theory itself, have followed Mr. Dalton in the use of the terms *atom* and *atomic weight*, in preference to *proportion*, *combining proportion*, *equivalent*, and others of a like kind. All these appellations, however, have the same signification; and, in using the word *atom*, instead of the others, it should be held in mind that it merely denotes the proportions in which bodies unite; that it is the expression of a fact which will remain the same, whether the atomic hypothesis which suggested the employment of the term be true or false. There is one circumstance which, at the first view, seems hostile to the supposed atomic constitution of matter. According to the law of multiples (see *Chemical Equivalents*), oxygen in the three oxides of lead is in the ratio of 1 : 1½ : 2; so that, if we regard the protoxide as composed of one combining proportion of lead to one proportion of oxygen, the second will contain one proportion and a half, or, according to the atomic theory, one atom and a half of oxygen. Now, though the half of a combining proportion may be admitted, the existence of half an indivisible particle of matter is inconceivable; and this circumstance would be fatal to the atomic theory, were there not some satisfactory mode of accounting for it. Several explanations might be brought forward. One of them, which has found its advocates, rests on the supposition that what is called the protoxide, is, in reality, composed of one atom of lead to two atoms of oxygen; and that the real protoxide has not yet been discovered. Another mode of accounting for the anomaly is, by regarding the present deutoxide as composed of the protoxide and peroxide combined with each other. A third method is, by doubling both elements of the anomalous compound, by which the exact ratio is preserved, and the idea of the fraction of an atom is avoided. Thus the protoxide and peroxide of iron are composed, the first, of one proportion, or 28 of metal + 8 of oxygen, and the second, of 28 of metal + an atom and a half, or 12 of oxygen; or, what amounts to the same thing, of 56, or two atoms of iron, to 24, or three atoms of oxygen. These observations prove, that the occurrence of half proportions is not inconsistent with the atomic constitution of bodies: they show that the difficulty is explicable, and probably will, in the progress of discovery, be entirely removed. In the mean time, however, it would be inconvenient to allow any speculative notions on the subject to interfere with actual practice; and, therefore, it is best at once to admit the occurrence of half proportions; and, if any one prefer the term *atom* to *equivalent* or *proportion*, he must submit to the somewhat jarring expression of *half an atom*. Mr. Dalton supposes that the atoms of bodies are spherical, and has invented certain symbols to represent the mode in which he conceives they may combine together. (See his *New System of Chemical Philosophy.*)—There are several questions relative to the nature of atoms, most of which will, perhaps, never be decided. Of this nature are the questions which relate to the actual form, size and weight of atoms, and to the circumstances in which they mutually differ. All that we know with any certainty is, that their weights do differ, and by exact analysis the ratios between them may be determined. The numbers which indicate the combining proportions of bodies, are, in fact, the relative weights of their atoms.

Auk. (See *Pinguin.*)

Austen, Jane, a gifted novelist, was born Dec. 16, 1775, at Steventon, in the county of Hants, of which parish her father was rector. Upon his death, his widow and two daughters retired to Southampton, and ultimately, in 1807, to Chawton. During her residence in the last-mentioned place, Miss Austen composed the novels, which, for ease, nature, and a complete knowledge of the features which distinguish the domestic life of the English country gentry, are very highly esteemed. The principal of these productions are Sense and Sensibility; Pride and Prejudice; Mansfield Park; and Emma. Two more were published after her death, entitled Northanger Abbey, and Persuasion, which were, however, her most early attempts. The object of Miss Austen, in all her works, was to advocate the superiority of sound principle, unsophisticated manners, and undesigning rectitude, to showy and artificial pretensions. Her discrimination was acute, her humor easy and spontaneous, and her power of creating an interest in her characters by slight and reiterated touches, extraordinary. This amiable and accomplished lady, whose personal and mental attractions were of a high order, died of a decline, on the 18th of July, 1817, in her forty-second year.

Aviary. The aviary was common to the country-houses of the Romans, but used principally, as it would appear from Pliny, for birds destined to be eaten. Singing-birds, however, were kept by the Persians, Greeks, and also the Romans, in wicker-cages; and these utensils, no doubt, gave rise to the large and fixed cage called an *aviary;* but in what country, and in what age, appears uncertain. They are highly prized in China. In the altercations which took place during lord Amherst's embassy, it was stated, on the part of the emperor, that sir George Staunton had built himself a house and an *aviary*. That they were in use in England in Evelyn's time, is evident from a memorandum entered in his diary, that the marquis of Argyle took the parrots in his aviary at Sayes' court for *owls*.—The *canary*, or *singing-bird aviary*, used not unfrequently to be formed in the opaque-roofed green-house or conservatory, by enclosing one or both ends with a partition of wire, and furnishing them with dead or living trees, or spray and branches suspended from the roof for the birds to perch on. Such are chiefly used for the canary, bullfinch, linnet, &c.—The *parrot aviary* is generally a building formed on purpose, with a glass roof, front and ends; with shades and curtains to protect it from the sun and frost, and a flue for winter heating. In these, artificial or dead trees, with glazed foliage, are fixed in the floor, and sometimes cages hung on them; and at other times the birds allowed to fly loose.—The *verdant aviary* is that in which, in addition to houses for the different sorts of birds, a net or wire curtain is thrown over the tops of trees, and supported by light posts or hollow rods, so as to enclose a few poles or even acres of ground, and water in various forms. In this the birds in fine weather sing on the trees, the aquatic birds sail on the water, or the gold-pheasants stroll over the lawn; and in severe seasons they betake themselves to their respective houses or cages. Such an enclosed space will of course contain evergreen as well as deciduous trees, rocks, reeds, aquatics, long grass for larks and partridges, spruce firs for pheasants, furze-bushes for linnets, &c. An aviary, somewhat in this way, was formed by Catharine of Russia, in the Hermitage palace. These are the only sorts admissible in elegant gardens; since nothing, to one who is not an enthusiast in this branch of natural history, can be more disagreeable than an apartment filled with the dirt and discordant music of innumerable birds; such, for example, as the large aviary at Kew. Birds from the hot climates are sometimes kept in hot-houses among their native plants, as in the large conservatories at Vienna. In this case, the doors and openings for giving air must be covered with wire cloth, and the number must not be great, otherwise they will too much disfigure the plants with their excrement.—*Gallinaceous aviary*. At Chiswick, portable netted enclosures, from ten to twenty feet square, are distributed over a part of the lawn, and display a curious collection of domestic fowls. In each enclosure is a small wooden box or house for sheltering the animals during night, or in severe weather, and for breeding. Each cage or enclosure is contrived to contain one or more trees or shrubs; and water and food are supplied in small basins and appropriate vessels. Curious varieties of aquatic fowls might be placed on floating aviaries on a lake or pond.

Axle. (See *Mechanics.*)

B.

Babyroussa. (See *Hog.*)

Badge. (See *Device.*)

Bahobab Tree. (See *Baobab.*)

Bailliol. (See *Baliol.*)

Balas Ruby. (See *Spinelle.*)

Balbi, Adrian, born in Venice, was appointed professor of natural philosophy and geography in his native city, and, about the year 1820, went to Portugal. Here he became acquainted with the most influential politicians and literary men, and collected, in the archives of the government and elsewhere, materials for his *Essai statistique sur le Royaume de Portugal et d'Algarve* (Paris, 1822, 2 vols.). This excellent work contains, among other things, a chapter on Portugal in the time of the Romans. The political part of the work is the least complete; but Balbi expressly says that there are particular causes for this. In 1826 appeared at Paris his *Atlas Ethnographique*, in one folio volume, and an octavo volume, containing illustrations. This useful work contains a great deal of new information obtained from men like A. von Humboldt, Freycinet, Rémusat, William von Humboldt, Champollion, Hase, Jomard, Klaproth, Malte-Brun, Ritter and others. The chapter on the different modes of writing among various nations is peculiarly interesting. Balbi has also published, in Paris, statistical tables on Russia, France, the Netherlands, &c., which he intends to use for a great work. He has written several excellent articles in the *Revue Encyclopédique*, the *Revue des deux Mondes*, and the *Revue Britannique*. He is now publishing a geographical manual, and, after the publication is completed, will return to Italy, where a professorship of geography awaits him.

Balize. (See *Honduras.*)

Bamba. (See *Cuenza.*)

Bannier, John. (See *Baner.*)

Barante, Prosper Bruguière de, a French politician and man of letters, was born at Riom, in Auvergne, in 1783, and is descended from an old noble family. Under Napoleon, he was appointed auditor of the council of state. He was then sent as sub-prefect to Bressuire; some time after, was made prefect of the Vendée, and, subsequently, of the still more important department of the Loire. His brother was sub-prefect of Luxemburg, and his father had been prefect of the department of Leman. In 1809, Barante married a Miss Houdelot, grandchild of Mad. d'Houdelot, celebrated in the Confessions of Rousseau. When Louis XVIII returned, after the hundred days, Barante came into special favor. He received the lucrative post of superintendent of the indirect taxes, having been previously made counsellor of state. The department of the Puy-de-Dome elected him deputy; and he supported the ministers of Louis. He retained his post until the downfall of Decazes (q. v.), but was subsequently made peer. He now voted with the moderate party, and opposed several measures under Charles X, which were contrary to the spirit of the charter His speeches contained many wise observations As soon as the house of Orleans was raised to the throne, Barante was sent as minister to the court of Turin, where he was still in the spring of 1832 He published, in 1809, a work on French literature in the eighteenth century, and contributed to the *Biographie Universelle* some important articles, as *Froissart*, and *Bossuet*. While prefect in the Vendée, he became acquainted with the famous madame de la Rochejaquelein. He offered her his assistance in the preparation of the history of the war in the Vendée; and to him is ascribed the *Mémoires de Madame de la Rochejaquelein*, which went through several editions. He also contributed to Ladvocat's *Théâtre Étranger*, and translated some of the productions of Schiller. He seems, likewise, to have contributed to Broglie and Guizot's *Revue Française*. In 1829, he published an essay on the government of the communes, when this question was agitated under Martignac. This essay shows a very imperfect knowledge of foreign laws and institutions. From 1824 to 1826 appeared ten octavo volumes of his *Histoire des Ducs de Bourgogne*. It comprises a period of little more than a hundred years.

Little is said of Burgundy in particular, the work being principally taken up with France and Flanders. It is not of much value in point of historical research, following only the French printed chronicles; but, in point of execution, it has great merit. The style is simple and clear; and the author does not add a single remark of his own. This way of writing history, in which he took the old chronicles for models, as he says in his preface, was something new in France, and has found imitators. In 1826, he was elected member of the French academy in the room of Desèze, and, in his eulogy on his predecessor, attacked the revolution. He is now writing a history of the parliament of Paris.

Barberini Vase. (See *Portland Vase*.)

Bark. (See *Plant*.)

Barbé-Marbois. (See *Marbois*.)

Barozzi. (See *Baroccio*.)

Barrow, John, member of the royal society of London, and secretary of the admiralty, from his youth has been devoted to the study of geography, mathematics and astronomy. From 1786 to 1791, he taught astronomy at Greenwich. When lord Macartney, in 1792, went on his famous embassy to China, he took Mr. Barrow with him as his private secretary, and sir George Staunton (q. v.) as secretary of legation. These gentlemen, as well as Macartney's other companions —Anderson, Holmes and Alexander— each published, in a separate work, an account of what he had seen. Barrow's is the most satisfactory. He describes, minutely, Cochin-China, whither he had gone, while the other members of the embassy remained with the Chinese court in the Mantchoo country. Soon after his return to Europe, he published, in 1794, descriptions of various sorts of pocket-apparatuses of mathematical instruments, for which he had already collected materials during his residence in Oxford and Greenwich. The fame of Mungo Park (q. v.) excited in him a desire to travel in Africa; and he wished to penetrate into the interior of this continent from the south. He travelled through the desert of Karroo, and through the mountain chains of Zwartberg and Nieuweldt, and at last arrived at the village of Graaf-Reynet, where he joined a mission to some Caffre chiefs. He penetrated to the Sneuwberg, and made himself acquainted with the Hottentots, Caffres, and the wild Bushmen. Having returned to Cape Town, he went, without any companion or servant, into the territory of Namaqua, in the neighborhood of the western coast, and made a second journey into the country of the Caffres. His work—Account of Travels into the Interior of Southern Africa (London, 1801—4) —gives a new view of Southern Africa and its inhabitants, and remains, together with those of Lichtenstein and Thompson, the safest guide for travellers in that region. In 1804, he published his Observations on China, which excited so much interest in France that the son of the celebrated orientalist De Guignes wrote a particular treatise on it—*Observations sur les Voyages de Barrow à la Chine*. Two years after, appeared his journey to Cochin-China, to which is added an account of travels to the residence of the chief of the Bushwanas, in 1801—2, the farthest point to which any European had penetrated in Africa from the south. Malte-Brun translated the whole into French in 1807. In this year, Barrow published Memoirs of lord Macartney; but these are considered to be much biased by personal friendship. The most elaborate work which he has published is his Historical Account of Voyages into the Arctic Regions (London, 1818). Having been, for a number of years, under-secretary to the admiralty, he has been able to do a great deal for the advancement of geography and natural history. No scientific expedition, for about twenty years, has been undertaken from England for which he has not made the plan, or selected the persons, or prepared questions to determine the points to which their activity should be directed. Parry, Ross, Buchan, Franklin, Richardson, &c., have benefited by his instructions. He is a member of most geographical societies, and his correspondence extends over the globe. May 24, 1830, he proposed, in the Raleigh traveller's club, the foundation of a geographical society, such as had already been formed by Malte-Brun, Eyriès, &c., in Paris, and by Ritter and Berghaus, in Berlin. July 16, the society was instituted; and Barrow, its vice-president, is the soul of it.

Barth, Jean. (See *Baert*.)

Barthélemy and Méry; two French poets, who have coöperated in their productions, like Beaumont and Fletcher. Both were born towards the end of the last century, at Marseilles. Their education was almost monastic. The authors of *Rome à Paris* learned Greek and Latin in the school of the fathers of the oratory (*pères de l'oratoire*). In their fifteenth year, when they left this school, they could read Homer and Virgil; but Racine and Voltaire were unknown to them. They studied with zeal to supply the deficiencies in their education. In 1823, shortly before the campaign in Spain, they went to the capital. The political struggle had ended favorably for the ultras; and the vanquished revenged themselves by speeches in the chambers, and sarcastic attacks in the journals. The poetical twins caught the spirit of the time, and their satire, though more sportive than bitter, assailed individuals by name. The *Sidiennes, Épîtres-Satyres sur le dix-neuvième Siècle* (1825), addressed to Sidi Mohammed, ambassador of the bey of Tunis, who was present at the coronation of Charles X, were not received with undivided applause. They long sought in vain for a publisher; and for their next satire, *La Villéliade*, they were offered only 100 francs. They therefore printed it at their own expense, and sold sixteen editions, amounting to 50,000 copies. From 1825 to 1828, appeared *Les Jésuites; Rome à Paris; La Peyronnéide; La Corbiéréide; Le Congrès des Ministres; Une Soirée chez Peyronnet*; and *La Censure*. Four days before the dissolution of Villèle's cabinet, the *Adieux aux Ministres* appeared. Under Martignac the satirists found little matter for their lash. With *Napoléon en Egypte* (1828), they entered a new field, and gave to French literature the most successful poem in the historical style which it yet possesses. While Méry made a journey to Greece, Barthélemy went to Vienna to offer this poem to the duke of Reichstadt, but could not succeed in getting access to the young duke. After his return, he described the history of this unsuccessful attempt, and the feelings which agitated his soul when he saw the prince in the theatre, in his poem *Le Fils de l'Homme, ou Souvenirs de Vienne*. The police immediately laid hands on it; but an edition, published in Brussels, which supplied some passages omitted in the edition of Paris, got into circulation before the legal prosecution of the poet and the printer began. On the trial, Barthélemy read a defence in verse, in which, precisely a year before the decisive days of July, 1830, he says, with bitter sarcasm, that fourteen years of tranquillity had given stability to the monarchy, and that nothing was to be feared at a time when the nation was tranquillized, and the king without suspicion.

Que les tems sont changés! Citoyens pacifiques,
Hélas! loin d'exciter des tempêtes publiques,
Tremblans, privés d'appui, bannis, persécutés,
Gênés par la censure ou par nos libertés,
Nous trouvons à la fin pour unique refuge
Un arret pour salaire et pour critique un juge.

But neither his harmonious verses, nor Merilhou's eloquent defence, could save the poet: he was sentenced to three months' imprisonment, and to pay a fine of 1000 francs. In the next year, he and Méry published, together, another satire, *Waterloo au Général Bourmont*, and Barthélemy alone produced a less spirited *Satyre Politique*. Both took an active part in the revolution of 1830. *L'Insurrection*, a triumphal song, was finished within a few days after. Barthélemy received a pension from the new government, which, however, he soon gave up, as subjecting him to unpleasant restraint. His latest poems are *Douze Journées de la Révolution*, which have appeared in numbers, since March, 1832. The Twelve Days begin with June 20, 1789 (the oath in the tennis court at Versailles), and end with the 18th of Brumaire. The poem on the 10th of August, 1792, is entitled *Le Peuple-Roi*. The periodical *Némésis*, which was received with much approbation, came to an end on April 1, 1832; and Barthélemy returned to Marseilles. The *Némésis* was written in verse, generally of a satirical character, and treated of the persons and events of the time. Méry is now a librarian in Marseilles. He assisted his friend in editing the *Némésis*. Méry has written two novels—*Le Bonnet Vert* (which reminds the reader of Victor Hugo's *Dernier Jours d'un Condamné*), and *L'Assassinat* (Paris, 1832), a dramatic picture of the royalist reaction in the south of France, in 1815. A complete collection of the works of both has lately been published in Paris, under the title of *Œuvres de Barthélemy et Méry*, with an introduction by Reybaud. The portraits in this edition are miserable.

BASAR. (See *Bazar.*)

BASS-WOOD. (See *Lime.*)

BATH, EARL OF. (See *Pulteney, William.*)

BATH METAL. (See *Copper.*)

BAY. (See *Laurel.*)

BAYNHAM, William, surgeon, son of doctor John Baynham, of Caroline county, Virginia, was born in December, 1749. To complete his education, he went to London, in 1769, where he entered as a student at St. Thomas's hospital. Here he devoted himself particularly to the study of anatomy and surgery, and soon acquired great proficiency in both these departments. In 1772, he was employed, by the professor of anatomy at Cambridge, to dissect and prepare the subjects for his lectures, and continued to assist him in this manner for several winters, practising, during the remaining part of the year, very profitably, at Margate. He afterwards returned to London, and became assistant demonstrator to Mr. Else, professor of anatomy in St. Thomas's hospital. June 7, 1781, Mr. Baynham was made a member of the company of surgeons of London (which is to the surgeon what the degree of doctor of physic is to the physician), and commenced the practice of surgery in that city, in which he continued for several years. Having resided sixteen years in England, he returned to his native country, and settled in Essex, where he acquired extensive reputation, and was often sent for to the large towns, and sometimes even into other states. There is scarcely any difficult operation in surgery which he did not perform, and with almost invariable success. As a surgeon, Mr. Baynham had probably no superior; as an anatomist, he certainly was unsurpassed. He likewise obtained great eminence as a physician. Whilst in Britain, he was, unquestionably the best practical anatomist there, being unrivalled in the dissecting-room. He continued practising in Essex county until his death, which occurred on the 8th of December, 1814, in the sixty-sixth year of his age.

Bear and **Bull.** (See the article *Stock-Exchange.*)

Beech Drop. (See *Cancer Root.*)

Behemoth. (See *Hippopotamus.*)

Belgium, since 1830. When we referred from the article *Netherlands* to the article *Belgium*, in the Appendix to the concluding volume, we hoped to be able to give an account of the settlement of the dispute between Holland and this new kingdom; but the difficulties between the two powers are not yet adjusted. As the Belgic revolution, however, is an event of great interest, and by many but imperfectly understood, we shall now give an account of it down to the latest information received. The statements, as far as to March, 1832, are taken from the article *Belgium*, in the new supplement to the German *Conversations-Lexikon* (Conversations Lexicon of the latest Events and Literature, Leipsic, 1832); and the degree of confidence which they deserve must depend on the degree of fidelity with which that article is drawn up. If, at some future period, a supplement to this work should be published, more information will be given under the heads *Netherlands*, *Leopold*, *King of Belgium*, and *London Conferences*. It is one of the striking events of an age of a most peculiar character, that while an oppressed people on the Vistula, which, from the beginning of modern European history, had formed a distinct nation, was suffered to be ground to the dust in its struggle to regain the independence which force and fraud had wrung from it—it is strange, we say, that, while such a people was sinking, unaided, like a hero covered with wounds, yet sword in hand, against the universal feeling and interest of Europe, and against the principles of humanity and justice, —at this very time, a population on the Meuse and Scheldt, which had no peculiar history or language, which never formed a distinct nation, and had nothing in its natural situation to give it such a character, which had been prospering under a constitutional government and a conscientious king, has been raised to the rank of an independent state; and, in the face of the fundamental treaties of the European powers, from the fear of a general war, Belgium, a district originally belonging to Germany, then united with the rest of the Netherlands and with Burgundy, afterwards separated from them and belonging to Spain, then to France, Austria and Holland, at length, for a few years, to France alone, and, at last, to Holland alone, after having invariably been the prey of foreign arms, and acquired, through French conquests, the German province of Liege (q. v.), has, at length, become, in consequence of a revolution, and by means of sixty and more protocols of the plenipotentiaries of the five great powers of Europe, a separate state; and the Letto-Germanic, Wallonic, Flemish, German, Dutch and French population, which is as heterogeneous as its dialects, its laws, and its successive rulers, has received a separate constitution, a German king, and the guarantee of French protection. It is promised perpetual peace or neutrality, while war hangs over it like the suspended sword of Damocles. This independence—if such it may be called—is burthened with an old and new public debt, and a deficit in the very cradle of its national existence, and has been acquired at the expense of the mart of its industry, and its channels of export. This state of things is the result of powerful causes, at work in other parts of Europe, aided by the total difference of the Dutch and the Belgians, and is supported by one half of Europe, while the other is decidedly hostile to it, though not yet prepared to manifest their inclination. It has been, also, repeatedly asserted from Belgium itself, that more than half of the four millions of Belgians bitterly regret the separation from Holland. Before we describe the events which led to the present result, we must take a rapid view of the former position of Belgium, with regard to Holland.- The Southern Netherlands, or Belgium, and the Northern Netherlands, or Holland, were united into one political body by the congress of Vienna (q. v.), in 1814 and 1815, with the view of giving Germany more security against France, and in consideration of the union which had formerly existed between all the provinces of the Netherlands; perhaps, also, in some measure, with a view to the interests of both parties. The consent of the Southern Netherlands was not asked: the great powers disposed of them as of other conquered provinces and districts. But there are hardly two nations of Europe more unlike than the people of the Southern Netherlands and of Holland—in religion, language, manners, domestic customs, and interests. Politicians, who were well acquainted with both parties, and well disposed towards them, deprecated the idea of their union, but to no purpose.* England was decidedly in favor of it. Four millions of Catholics, chiefly employed in agriculture and manufactures, were united with two millions of Calvinists, in the Dutch sense of the word, essentially commercial in their pursuits and dispositions, speaking a different language, and one which had always been disagreeable to the Belgians. They were to have one constitution, one legislature, one executive. But the agricultural and manufacturing interests of Belgium were so opposed to the commercial interests of the Dutch, that measures highly acceptable to the one were often odious to the other. Yet this diversity of interest seems to have been by no means so great a cause of disagreement as the difference of language, religion and character. The proud and rich Belgians, in language and manners resembling the French, though far behind them in cultivation, at the same time dependent upon a jealous and blind Catholic clergy, decidedly hostile to all innovations, particularly when proceeding from two millions of Dutch, were bitterly opposed to the measures of king William and his ministers, for blending the two discordant masses into one, by making the Dutch language general in the country, and the official language. It was not to be supposed that the Belgians would willingly suffer this, as the language of a man is his very being; yet, on the other hand, it was natural that the government should wish to introduce more uniformity and stronger national ties; and they could hardly be expected to make the French the common language, as the Dutch formed the nucleus of the nation, from whom the political institutions of the country came, as the result of a long and glorious history—not to mention that the king himself is a native Dutchman. The king, however, revoked the decrees which had given such offence to the Belgians,† and even decreed the abolition of the philosophical college at Louvain—an institution founded with the best intentions, but a stumbling-block to the majority of the Catholic clergy of Belgium, who thought the light of science incompatible with the objects at what they aimed. But this measure did not satisfy the Belgians: the great body of them hated the Dutch as Protestants, while those who did not care for religious distinctions were equally hostile, because the Dutch, as they thought, were preferred to them. Thus it happened that the modern party of liberals, and the ultra-Catholic party (which had already successfully opposed the reforms of Joseph II), united—strange as it may seem—in order to oppose the Dutch Protestant government, as they called it (though no Catholic was ever molested in his religious rights), in the chambers, periodicals, and by petitions, with a mingled spirit of republicanism and ultramontanism; so that foreign observers were often struck with the tone of their newspapers as singularly inconsistent. The feeling of grievances now outweighed by far the consciousness of advantages secured to the Belgians by the act of union. One great complaint had always been that the Belgian deputies originally had actually rejected the constitution, which gave to the Dutch provinces, though much inferior in area and population, an equal number of representatives in the states-general with the Belgians, for which reason the majority of the Belgian notables rejected it; but, as the votes of the members not present were counted as ayes, the new constitution was, nevertheless, declared to have been adopted. This was the first ostensible cause of the discontent of the Belgians, which continually increased. Hence the Belgic opposition waged a continual war against the administration, perhaps so much the more violent as they had been obliged to observe a deathlike silence under Napoleon's government. The liberals, uniting with the ultramontane party, demanded, under pretext of freedom of education, the continuation or restoration of the Catholic colleges, yet on the old Jesuitical plan, for which reason the clergy, who were highly influential with the lower classes, joined with the liberals in the demand for the liberty of the press, juries, and the responsibility of ministers. Laws had been passed, respecting the schools, which limited the right of instruction, so that the government could exercise a supervision as to the competency of the teachers. The clergy hated this restriction, as it deprived them of the sole management and direction; so that the Catholic clergy in Belgium demanded for the people the same thing which it denied, at that very time, to the liberals in France. The opposition had become so violent, and not unfrequently, as respected the tone of the newspapers, so revolutionary, that the government thought itself obliged, towards the end of 1829, to resolve upon a firm resistance, having tried in vain to allay the spirit of opposition by various concessions. Those officers who, in the house of deputies, had voted against the budget, lost their offices and pensions; and a prosecution for treason was undertaken on the ground of De Potter's private correspondence. During the next session of the states-general, 964 petitions

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* Niebuhr, the historian of Rome, who was well acquainted with the country and people, having lived some time there in the service of the Prussian government, was of opinion that the two portions, if united at all under one king, ought, at least, to have separate constitutions and legislatures, like Norway and Sweden. As early as 1821, we heard him predict a violent separation.

† Though it might be supposed self-evident that language and religion must be the dearest possessions of every man, we find so many attempts, in history, on the part of governments, to make violent changes in these particulars, that we feel induced to translate a passage of a ministerial decree in Prussia, of Dec. 23, 1822, dictated by a spirit of true wisdom. It may be found in the Annals of the Prussian Popular School System (vol. iii, Berlin, 1826). At the same time, we should mention that the Prussian government takes care to Germanize, as rapidly as reason will permit, those districts which speak languages that either never arrived at any literary cultivation, or are now spoken only by small communities, and, therefore, serve only as barriers to the spread and progress of civilization. And, in so doing, they act wisely. If a small community speaks a different language from the surrounding people, and thus separates itself from the great current of civilization, while it is incapable of having a literature and intellectual developement of its own, as was the case with some Bohemian communities, but a short time since, in the mark of Brandenburg, they are liable, as many remarkable instances show, to suffer a complete mental stagnation. The passage of the decree of the Prussian minister of instruction is this :—"As to the propagation of the German language, it is first necessary that we perceive clearly what we wish, or should wish, in this respect, namely, whether only to diffuse a general knowledge of German among the inhabitants of the Polish provinces, or to Germanize the whole people by degrees, indeed, and imperceptibly, yet, nevertheless, as completely as possible. In the opinion of this department, the first only is necessary, advisable and practicable, the second injudicious and impracticable. In order to be a good subject, and to participate in the benefits of the institutions of the state, it is, indeed, desirable and necessary for the Poles that they should understand the language of the king

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dom and government, and be able to make themselves understood in the same; but it is not necessary that they should, therefore, give up their national tongue, or treat it as secondary. The knowledge of two languages is not a disadvantage, but, on the contrary, may be considered as an advantage, as it is generally connected with greater versatility of the mental powers, and a readier power of perception. But, even if it should be considered desirable to limit, by degrees, the use of the Polish language, and thus to denationalize the people, yet every open step towards the extirpation of the language would only tend to defeat the object. With the religion and language of a nation all their feelings and thoughts are interwoven. A government which acknowledges, values and protects these, may be sure to gain the hearts of its subjects; but one which slights or attacks them, embitters or dishonors the people, and makes disloyal and bad subjects. But those who may think that it would materially contribute to the civilization of the Polish nation to be Germanized, at least in language, are greatly mistaken. The cultivation of an individual and of a nation can only be effected through the vernacular tongue. The language in which a man thinks, is the most proper and powerful element of his improvement: he may have learned a great deal in foreign languages; but that which he actually knows and understands, he knows and understands only in one language, namely, in that in which he thinks, therefore generally in his vernacular tongue. To take from him this, and to force upon him another, would be a preposterous mode of promoting the improvement even of an individual; how much more unsuitable is it to be applied to a whole nation! even if the latter had not so rich, independently developed and grammatically perfect a language as the Polish. If it is truly desirable to aid in the cultivation of the Polish nation, this will always be done most certainly by means of their own language; and the interest of government will be sufficiently provided for if the German language is introduced into every Polish school as one of the subjects of instruction, and care is taken that children are well versed in it before they leave the school" remained unnoticed; and the new law of the press, having undergone a slight modification, was adopted, May 21, 1830. (See *Another Word on the Belgian-Dutch Question* (January, 1832, Hamburg, by a minister of state, in German), intended to prove the necessity of separation; also count Hogendorp's *Séparation de la Hollande et de la Belgique*, of Oct. 22, 1830.) We may learn the grievances of the Belgians from the address sent in by the city of Mons. It contains fifteen of them: 1. It demands the responsibility of ministers, which, by the terms of the constitution, was to be established by a law. 2. Liberty to use, in legal and other instruments, the French language as the language of the country. 3. A more proportionate distribution of offices and appointments among the Belgians and Dutch. The equality desired had reference to cabinet offices, and, in general, those connected with the higher branches of the administration, because, as to the offices in the provinces and communes, there was no reason for complaint. But, in October, 1830, of six ministers actually in possession of *portefeuilles*, four were Dutch and two Belgians. Also the chief places in the various departments, particularly those of war, the navy, and the finances, were generally in the hands of Dutchmen; for which the reason given was that there was not a sufficient number of persons among the Belgians qualified for those offices, owing to their former situation under the French government, in which few Belgians had opportunity to become acquainted with the duties of the most important offices, while the Dutch had continued almost uninterruptedly under their own officers; but it must be allowed that, in the war department at least, the Belgians were probably capable of furnishing as well qualified officers as the Dutch, owing to their having served for so long a time in Napoleon's army. Some writers have inferred the contrary from the deficiency of officers among the Belgians immediately after their revolution, which obliged them to take French officers; but this was owing to the fact that most of the higher officers of Belgian extraction remained in the Dutch army. As to the professors in the Belgian colleges, it was natural both that the government should invite Germans to occupy the chairs, and that the Belgians should dislike this. 4. The location of the supreme court in a city in the centre of the kingdom. The place eventually chosen for the court was the Hague, with which the Belgians were much dissatisfied. 5. The introduction of juries in criminal cases, in trials for political offences, and for offences against the liberty of the press. The trial by jury had been abolished in 1814; and, in the states-general of 1828, it had been rejected, as far as respected criminal cases, by a majority of sixty-six to thirty-one; and in trials for offences against the press by a majority of fifty-seven to forty (these majorities included Belgians). 6. A revision of the laws respecting the press, in order to bring them into accordance with article 227 of the fundamental law. It seems that a mitigation of the fines and other punishments for abuses of the press, was demanded, which did not, however, take place until March 21, 1829. 7. A law for establishing a system of education, which thus far had been regulated merely by ordinances of the government. The clergy, irritated by the establishment of the philosophical college at Louvain, which had taken the place of the smaller seminaries dependent upon the bishops, had promoted the institution of a number of private schools, of which, however, the greater part were pretty obviously under the influence of the Jesuits. When, therefore, these were also closed by the government, the Catholics, who saw in this measure only a political movement of the Protestants, demanded the removal of restraints on instruction, and, as we have already said, the liberals made common cause with them. These two parties soon became united also on all other points, though they had long appeared to be irreconcilable enemies. 8. A law to settle the questions of competency between the courts and the departments of the administration. 9. Diminution of the taxes. Most of the cities complained particularly of the tax on slaughtering. Mons, with 23,000 inhabitants, paid more than a fourth part of this tax for the province of Hainault, which contained 570,000 inhabitants. The flour tax was also a subject of much complaint. It was, of course, much more severe in Belgium, an agricultural and manufacturing country, than in Holland, which depends mainly on commerce. 10 and 11. The better application of the fund for the encouragement of industry, which was employed in making advances to manufacturers. The Belgians wished to substitute premiums on exports. Holland, as a commercial state, desired freedom of trade and low duties. Belgium, a manufacturing state, asked for high duties on manufactured goods, and obtained them; from which circumstance the most violent contest of the Dutch and Belgians originated. Among the other complaints are, 14 and 15, respecting the restrictions on the liberty of election, which were also disliked in Holland, and on the representation of the country, being very disproportioned to the population of Belgium; but this was owing to the express provisions of the constitution, which, to prevent one part from giving law to the other, had assigned an equal number of representatives to each part; and this the more readily as Holland had the greater population, if the colonies were included. Whether the evils of which Belgium complained were real or imaginary, it certainly increased in wealth and population during the fifteen years of its connexion with Holland, which is particularly true of Antwerp, Ghent, Bruges, Ostend and Brussels. When, at last, after so many petitions, the royal message of December 11, 1829, appeared, confirming the system of administration hitherto followed, and a law was proposed against the licentiousness of the press, the animosity rose still higher. The ministers, particularly the minister of justice, Van Maanen, were attacked, with fanatical fury, by the chief organs of the apostolic and liberal parties, the *Courrier de la Meuse* and the *Courrier des Pays-Bas*, the former of which recommended, in October, 1829, a universal refusal to pay taxes. Political societies were formed, and impartial observers pronounced that a revolution was at hand. Nothing inflamed the Belgians, at that time, so much as the trial of De Potter, the editor of the *Courrier des Pays-Bas*, and his friends, for treason. De Potter, who had been, until 1827, a most decided anti-Catholic, had now placed himself at the head of the union of the liberals and ultramontanists. He drew up a plan of a national subscription for the patriots who should lose their places and pensions, or who had lost them, or who suffered from legal prosecutions. He also proposed a national act of union, by which the members obliged themselves to resist the government in every manner not inconsistent with the law. On account of their participation in this project, De Potter, Tielemans, Bartels and De Neve were, in May, 1830, banished, the first for eight, the second and third for seven, and the last for five years. De Potter now wrote, from Paris, to the king: "Sire, save Belgium; there is yet time." He advised him to substitute for his anti-national ministers popular men, beloved by the nation, and responsible to it, who would give up the clumsy and unjust system so long followed. The king could do nothing. What De Potter advised, the Dutch and Van Maanen rejected. Libry Bagnano, in a ministerial paper (*Le National*), declared that the malcontents ought to be muzzled like dogs, and receive the discipline of the whip. Affairs stood thus, when the news of the French revolution arrived in Belgium. One dynasty had been overturned, and another had been raised to the throne, by the people of Paris. Brussels, always ready to imitate Paris, caught the same spirit. The twenty-fourth of August, 1830, the birth-day of the king, was to have been celebrated by fire-works and an illumination. Both were omitted. But, on the twenty-fifth, the opera of *Massaniello*, so long, with other liberal pieces, excluded from the stage, was performed. This was the torch which lighted the flame. After the play, a mob hurried to the office of the *National* and to the house of Libry Bagnano. Every thing was demolished. Another mob seized upon the arms in the workshop of an armorer. The palace of justice, the hotel of Van Maanen, and the house of the director of police, De Knyff, were more or less injured. The commandant of Brussels and the *gendarmes* could effect nothing: the garrison took up arms; but the mob became more and more furious, and the palace of the minister Van Maanen was at last set on fire. When the day broke, the troops fired. Many of the people fell; but the riot continued. Many houses and manufactories in the environs were burned or demolished. Some of the burghers now hastened to the mayor, and demanded arms and the removal of the troops, with promises to pacify the people if their demands were granted. But they were too weak to effect this. The populace also called for arms, and, notwithstanding the opposition of the troops of the line, forced the arsenal. The burghers entered with them: every one armed himself. Amidst this confusion, a national or civic guard was organized, and towards eleven o'clock in the evening, placards were posted up, declaring that the troops had retired to the barracks, and that the flour tax was abolished. During the following days, the twenty-seventh and twenty-eighth, the civic guards, who had chosen baron Emanuel van der Linden-Hoogvorst their commander, succeeded in restoring peace, and preventing the commission of further outrages. On the twenty-seventh, however, the royal arms were torn down. The royal troops contented themselves with guarding the royal palace. The Brabant flag now floated over Brussels, and a society of burghers was formed, which elected baron de Secus, member of the states-general, president, and Sylvian van de Weyer secretary. The insurrection of Brussels produced similar explosions of popular hatred in other cities of the Southern Netherlands; but here, also,—at Liege, Mons, Louvain, Bruges, Ghent, Antwerp, Verviers, &c.,—the burghers soon armed themselves, reëstablished order, and formed committees of safety. In the mean time, many manufactories were burned, machines demolished, houses plundered, particularly those of the tax-gatherers and public officers, and the frontier *bureaux*. The royal arms were every where broken, and it was supposed by many, that a French party was active in keeping the insurrectionary spirit alive, to gain support for the recent changes in France. The commander of the royal troops, major-general count William de Bylandt, had declared, in consequence of a convention with the commander of the civic guards, baron van der Linden-Hoogvorst (on the twenty-eighth of August), that the troops expected in Brussels should not enter the city while peace and order could be maintained by the burghers themselves. Forty-four burghers of Brussels now chose a committee (consisting of Joseph van Hoogvorst, member of the states-general, count Felix de Merode, the counsellor Gendebien, Frederic de Secus and Palmaert), without consulting the governor or the regency, to present an address to the king, asking for a redress of grievances in general, and for the convocation of the states-general. The committee of safety of Liege also sent a deputation to the Hague, and published its address of the twenty-seventh of August, demanding a total change in the administration, the dismission of the ministers, the recall of the message of December 11, the establishment of the jury, the responsibility of ministers, the free use of the French language in all public transactions, &c. The same demands were made by Mons, Louvain, Tournay, Charleroi, Audenarde, Verviers, Huy, Grammont, Ath, &c. On the first intelligence of the disturbances in Brussels, the king had summoned the states-general to meet, September 13, at the Hague, by an edict of August 31. He told the Brussels deputation that he had the sole right to appoint and dismiss the ministers; that requests which were brought to him with the pistol at his breast could not be granted without a violation of his dignity and his duty to consult the states-general on subjects of such moment; but that he would consider the matter more fully. Troops had been marched towards Brussels, under the command of the king's sons, the prince of Orange and prince Frederic. The former invited the commander of the civic guards of Brussels to a consultation at the castle of Lacken. Baron van Hoogvorst repaired thither (August 31) with a committee, and requested the princes to enter Brussels with them, and without an escort. But the demand of the princes that all illegal ensigns and cockades should be removed, caused so much excitement in Brussels that the people barricadoed the gates and chief streets. A second deputation, however, and the advice of the minister Gobbelschroy, induced the prince of Orange to make a promise to enter the city at the head of his staff. The deputies guarantied the safety of his person, and the civic guard went to meet him. The entry was made on September 1. The prince was obliged, by the clamors of the populace, to go first to the town-house, and thence, by a circuitous route, to the palace, where he issued a proclamation, thanking the burghers for the restoration of order, and summoning a deputation for the next day, in order to confer upon further measures. The next day, the answer of the king to the deputation to the Hague was made known in Brussels by placards; but the people were so exasperated that they burned the royal answer, and were with difficulty prevented from attacking the palace. The consultation of the prince with the Brussels deputation, the president of which was the duke of Ursel, and with a deputation from Liege, resulted in the conclusion that an entire separation of the government of Belgium from that of Holland was the only means of restoring quiet. The prince consented to lay this demand before the king, on condition that the Belgians would promise, in such a case, to remain faithful to the house of Orange, to which the Belgian deputies assented with enthusiasm. The prince now dismissed the committee, and went to the Hague. The troops left Brussels, and the Belgian flag waved upon the palaces of the king, the princes and the states-general. Prince Frederic had also declared to the workmen at Liege, who had taken the arsenal on the second of September, that no troops should march against them. The dismission of the minister of justice, Van Maanen, at his own request, was likewise made known. The prince of Orange arrived at the Hague, September 4, where it was already known that the citizens of Amsterdam also intended to request of the king the separation of the government of the Northern Netherlands from that of Belgium. But the votes on this question were divided in several cities of Belgium, particularly in Antwerp and Ghent, which (September 8) sent addresses to the king, remonstrating against the separation. As early as August 28, the opinion of the commercial community of Antwerp was decidedly pronounced. "We have," said they, "seen, from the events in Brussels, their deplorable consequences, and the excesses which have accompanied this insurrection, that the lowest class only had taken part in them. We desire an opposition which defends law and liberty; but we reject with horror those who speak with the torch in their hands. These terrible and bloody excesses are, as Mirabeau says, the funeral pile of liberty." The proclamation of the king (September 5) declared, therefore, that the wishes and rights of all should be weighed and decided upon, in the regular and legal way, by the states-general. In Belgium, all the cities and towns now armed, as if for war: great numbers of people flocked into Brussels; and a body of excited Liegers, who entered this city (September 7) with cannon, endangered its tranquillity. The burghers now warmly demanded separation, and sent a deputation to prince Frederic at Vilvorde; but, as the prince referred to the constitution sworn to by the king, the impatience of the people increased to such a degree, that the general staff of the civic guards and the members of the states-general present, assembled in the town-house, considered it expedient to nominate a committee of safety, to watch over the preservation of the dynasty, and secure the separation of the south from the north, and the interests of commerce and industry. This committee was nominated, September 11, by the regency, and consisted of the counsellor Gendebien, the ex-mayor of Brussels, Rouppe, count Felix de Merode, the counsellor Sylvian van de Weyer, the duke of Ursel, Ferdinand Mecus, the prince de Ligne, Frederic de Secus; but the two last declined the office. As the Belgic deputies now met with the other members of the states-general in the Hague, the committee of safety exhorted the inhabitants of Brussels to await calmly the result of the session, and ordered strangers to leave the city. The working classes of Brussels, who had been left without employment, were promised work. September 23, the king opened the session of the states-general in the Hague. It was provided in the constitution, that that instrument should be changed only by the states-general. The king, therefore, proposed to them to take into consideration the proposed changes in the mutual relations of the two great divisions of the kingdom. The necessity of a change in the national institutions was recognised, by the lower chamber, by a vote of fifty to forty-four, and the necessity of a change in the constitutional relations of the two divisions of the state, by a vote of fifty-five to forty-three. Both questions were decided in the affirmative, in the upper chamber, by a vote of thirty-one to seven. September 29, the states-general declared, by eighty-nine votes against nineteen, the legislative and administrative separation of Belgium from Holland, and the common sovereignty of the house of Nassau. October 1, the king ordered a state committee to draw up a bill of separation, to be discussed and sanctioned by the states-general. But the Belgians would not wait for the constitutional way of proceeding, the result of which was no longer doubtful. The populace gained the ascendency in Brussels, and Belgium was drawn into the vortex of a revolution which still threatens all Europe. Under the pretext that Dutch troops might attack the city, and that the burghers were too irresolute, the populace, instigated by violent and factious individuals, and reenforced by the Liegers, took their arms from a part of the burghers. The pikemen joined them. The committee of safety ordered the Liegers to leave Brussels; but a new insurrection broke out: the country people made common cause with the populace; the civic guards were obliged to yield; the government hitherto existing was abolished (September 20); and the central society established a popular administration, at the head of which was to be placed De Potter (who was yet in Paris) and De Stassart, to whom Van Maanen, Gendebien, Raikem, count d'Oultremont, Felix de Merode, and Van de Weyer, were added. Thus the French and the republican parties, together with the ultramontanists, united to overturn the Protestant government and the monarchy. It seems that the clubbists from policy, and the armed populace from passion, intended to effect a formal rupture with the house of Nassau, by attacking (particularly on Sept. 20) the advanced posts of the royal troops stationed at Antwerp, under the command of prince Frederic. That part of the population which wished only the administrative separation of the two sections of the kingdom, had already become apprehensive for their property and the public safety: the power had been taken from those who had been the leaders of the opposition; and the wild and violent acts of the clubs threatened to involve Brussels and the rest of Belgium in a common anarchy. To avert this danger, some influential burghers invited prince Frederic to lead his troops into Brussels, whose tranquillity was disturbed by a small number of violent men, mostly strangers. The Belgian deputies at the Hague, anxious for their property, and disturbed by the news from Brussels, also called upon the king for aid: they assured him of the support of the majority, because every respectable man wished to see an end put to anarchy. The king, who had been as little inclined as the prince of Orange to an armed interference, yielded to these representations. Count de Celles, one of the leaders of the revolution, is said to have prevailed upon the king to adopt this measure. Prince Frederic, therefore, issued a proclamation (Sept. 21), from his head-quarters at Antwerp, to the inhabitants of Brussels, in which he says—"The national troops will enter your city in the name of the law, and at the request of the well-disposed burghers, in order to give them assistance and protection. . . . . A generous oblivion shall cover all past offences and irregularities. The chief perpetrators of acts too criminal to deserve forgiveness, the strangers who have abused your hospitality to excite disorder among you, shall alone be subjected to trial. . . . . The armed people not belonging to the city shall return home unarmed. . . . . The colors adopted by a part of the civic guard, as a mark of distinction, must be laid aside. . . . . Resistance will be met by force of arms." This proclamation became the signal for the struggle. French soldiers, and the example of the victory of the Parisians in July; the confidence in the barricades, and the zeal of the armed people; especially, however, the dangerous situation in which the leaders, excluded from the amnesty, found themselves placed, as well as the order to lay aside their colors,received by the burghers themselves with indignation, excited a determined spirit of resistance. The army with which the prince left Antwerp (Sept. 21) amounted to from 12 to 16,000 men. The troops thought that they had merely to clear the city of a few factious revolutionists and strangers, and that they would be assisted by all well-disposed burghers. The insurgents advanced (Sept. 22) to meet the prince, but, after some skirmishing, were driven back into the city. Here, Juan van Halen (q. v.), and a French general Mellinet, had the military command. In the night and the morning of the 23d, till eleven o'clock, the parties fought for the possession of the gates of Schaerbeck and Louvain. Every house was a block-house: from some of them boiling water and oil were poured; rockets and stones were thrown upon the troops, which, at length, at five o'clock in the evening, reached the royal palace. On the next day, after an obstinate struggle, the Dutch took possession of the other palaces, of the gate of Louvain and Namur, as well as of a part of the once magnificent King's street, now a heap of ruins, and of the park. But the lower city was yet to be cleared; and the struggle for the possession of the upper city was continued on the 25th. Volunteers from the surrounding villages had come to the assistance of the people of Brussels. The prince saw that submission could not be expected, and, having received information, at his head-quarters, on the 26th, that the people of Liege intended to march upon his rear, that the women were taking up arms, that the insurgents had recovered some important points,and that the palace of the king, and that of the states-general, were in flames, ordered a retreat, and marched through Mechlin to Antwerp, where he arrived Oct. 2. During these four days, twelve houses on the boulevards, the palace of prince Frederic, two hotels on the park, and other houses in various streets, had been burned down;* but it is said that the loss of the Belgians did not exceed 165 killed, and 311 wounded, while the loss of the Dutch, in killed, prisoners, wounded and deserters, was above 4000. After this victory, the insurrection spread with incredible rapidity.

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* During these days, the Liegeois, under Rogier and other volunteers, destroyed the greater part of the books and manuscripts of Van Hulthem, which composed one of the richest private libraries in Europe.

Mons, Ghent, Ypres, Dendermonde, Bouillon, Meenen, Namur, Louvain, Philippeville, Ath, Marienbourg, Doornick, Arlon, &c., fell, without resistance, into the hands of the insurgents, who consisted not so much of burghers as of volunteers and foreigners. Oct. 6, the Dutch garrison also left the citadel of Liege. De Potter had, in the mean time, made his entry into Brussels, and, as a member of the provisionary government, had put himself at the head of the central committee. The provisionary government now declared, Oct. 4, that "the provinces severed from Holland shall form an independent state." It resolved, Oct. 9, that a meeting should be held in Brussels to elect a ruler, and, Oct. 18, declared that the grand-duchy of Luxemburg was a component part of Belgium. Oct. 5, the prince of Orange, authorized by his father, declared, by a proclamation from Antwerp, that he assumed the government of Belgium, as separate from Holland, and held a cabinet-council of his ministers, among whom was Gobbelschroy, and in which the duke of Ursel presided. The prince was to rule the provinces which had remained faithful, and to pacify the insurgent ones. He was surrounded entirely by Belgians. But the bloody days of Brussels had alienated the hearts of the Belgians from the house of Orange, and the only remaining hope was in the election of the prince of Orange to be regent. The central committee (De Potter, Rogier, Van der Weyer, count Merode) of the provisionary government was now occupied with the preparation of a constitution, upon which a national convention of two hundred members was to be convoked to act.* From that time, three parties divided Belgium: the French party, strengthened by numbers of Frenchmen who had arrived from France, which desired the union of Belgium with France, or (because the Catholics were opposed to their union with France) to have the second son of the king of the French, the duke of Nemours (q. v.), for king of the Belgians; the second, at the head of which stood De Potter, was in favor of a democratic republic, preserving the Catholic religion as the religion of the state; the third, the most numerous, but which had not the courage to come forward boldly, wished for the prince of Orange as regent. During this period, when the volunteers, under the direction of their leaders, gave the law, and committed the most brutal excesses in the cities occupied by them, and when political excitement and popular licentiousness prevailed every where, all business was interrupted. Persons of property fled into foreign countries, and, in Brussels alone, 15,000 armed volunteers, besides a great number of poor people, were to be maintained. But no movement in favor of the Orangists had any success; not even in Ghent, the great market for whose cotton manufactures was Java, because the popular voice was too decidedly against the house of Orange.† In vain, therefore, did the prince of Orange declare (Oct. 16) that he acknowledged the independence of Belgium: in vain did count de Hogendorp maintain (in the work mentioned above) that the separation of Belgium, under one dynasty with Holland, was conformable to the interests of both countries and of Europe. The declaration of the prince was disrelished at the Hague, and the commandant of Antwerp refused to acknowledge his authority. The king himself having declared (Oct. 24) that, in future, he should govern only Holland and Luxemburg, and would leave Belgium to itself, until the great powers of Europe should have decided on its fate by the congress of ministers at London, but that, meanwhile, the fortresses of Antwerp, Maestricht and Venloo should remain in possession of the Dutch, and all the steps of the prince of Orange having been declared void, and the orders of the commandants of Antwerp and Maestricht directed to be followed,—war was decided upon. The prince therefore left Belgium (Oct. 25), and returned to the Hague. Belgian troops entered Antwerp, and broke the armistice concluded with the commandant of the citadel, lieutenant-general Chassé, who then bombarded the city for seven hours, with 300 cannons. The bombardment destroyed thirty houses, damaged hundreds of others, and destroyed merchandise to the value of several millions of guilders. This disaster, of which each party accuses the other as the cause, raised a new wall of separation, not only between Holland and Belgium, but also between Belgium and the prince of Orange. The whole commercial world was now excited, both in Europe and America, and claimed indemnification at the Hague. The authority of law had by no means been restored in Belgium. In Hainault and Bruges, plunderings, burnings and murders were committed. In Louvain, the Dutch major Gaillard, being taken prisoner, was put to death under the tree of liberty, with the most shameful cruelties. The gallant defender of Brussels, Juan van Halen, who was persecuted by the priests, was likewise arrested at Mons, and narrowly escaped the fury of the people. His trial resulted in his favor; but he was excluded from the public service. De Potter's influence also began to decline. His project of establishing a democracy failed. The propaganda in Paris, connected with him, was not strong enough to oppose the peace policy of the French government, and the monarchical principles insisted upon by the London conference. The four great powers also rejected every idea of a union of Belgium with France. The nobility, the rich landed proprietors and merchants, who felt the tyranny of the mob and the clubs, and, above all, the clergy, were in favor of a constitutional monarchy, and a representation in two chambers. The national congress met Nov. 10, and unanimously proclaimed, Nov. 18, under the presidency of Surlet de Chokier, the independence of Belgium, by 188 votes, with the reservation of the connexion of Luxemburg with the German confederacy. (q. v.) Nov. 22, the same congress adopted, by 174 votes against 13, a monarchical form of government, and, Nov. 24, without regard to the London protocol of the 17th of the same month, in which the exclusion of the members of the house of Nassau, in the election, was prohibited, voted the exclusion of the house of Nassau from the Belgian throne, by 161 votes against 28, although even the French government had urgently advised the congress against this step. Dec. 17, the motion that the senators (or members of the upper chamber) should be elected by the electors of the lower chamber was adopted by 136 votes against 40; so also was the proposition that the senators should be elected for double the term of the deputies, that the senate might be dissolved, and that the number of senators should be half the number of the deputies. A proposition to abolish nobility was rejected; so also was the proposal to repeal the exclusion of the house of Orange. The provisionary government continued its functions at the request of the congress; but De Potter declared, Nov. 15, that he should retire from the administration. The London conference was anxious to stop the effusion of blood: for this reason, an armistice of ten days between the Belgian and Dutch government was proclaimed on Nov. 25, and the frontier of May 30, 1814, was adopted. But this frontier was differently understood by the different parties. The decisive declaration of the French cabinet against an intervention by the other powers; the great armaments of France; the change of administration in England, where lord Grey (q. v.) took the place of Wellington (q. v.); the union of France and England, effected by Talleyrand; and finally the Polish revolution,—were highly favorable to the Belgian revolution. The recommencement of hostilities with Holland, towards the end of 1830, had no important consequences. The chief question remaining was the choice of a ruler. Baron de Stassart favored the plan of electing the king of the French. Belgium, however, forming a separate kingdom, count Robiano de Boorsbeek wished for a native prince. The liberals were decidedly opposed to the theocratic views of count Robiano. Another party was in favor of the duke of Leuchtenberg, the son of Eugene (q. v.); but the diplomatic committee informed the congress that France would never acknowledge the duke king of the Belgians, and that king Louis Philip would no less positively decline the union of Belgium with France or the election of the duke de Nemours as king of the Belgians. The election finally took place Feb. 3, 1831. One hundred and ninety-one members were present, and ninety-seven votes were for the duke de Nemours, seventy-four for the duke of Leuchtenberg, and twenty-one for the archduke Charles. The president now declared Louis Charles Philip, duke de Nemours (born Oct. 25, 1814), duly chosen king of the Belgians; and, on the fourth, a committee of the congress was sent to the king. They were received in a friendly manner; but the king declined the crown for his son, and it was understood to be his wish, that the brother of the king of the Two Sicilies should be elected.* The central committee of the congress decided on the election of a regent, and, Feb. 24, the congress elected baron Surlet de Chokier regent of the Belgians. He was solemnly inducted on the twenty-fifth, and took the oath to preserve the independence of Belgium and maintain the exclusion of the house of Orange. In a succeeding session, the congress adopted the electoral law by 101 votes against 31. The members of the provisional government announced that their authority was at an end. Congress voted them a grant of 150,000 guilders. De Potter went to Paris. The regent first confirmed the existing ministers: at a later period, he appointed new ones. But order did not revive with the establishment of the new government. Towards the end of March, there were disturbances in Liege, Antwerp, Ghent, Mechlin, Namur, and even in Brussels; but they were suppressed with energy. March 29, 1831, congress was again opened by the regent: of 200, but little more than half were present. The congress voted to call out the first class of civic guards, amounting to 90,000 men, and to raise a loan of twelve million guilders. Upon the recommendation of England, prince Leopold of Saxe-Coburg was now looked to as a suitable person to fill the Belgic throne. A deputation, therefore, was sent, April 17, to London, consisting of several members of the congress, to sound the disposition of the prince, and, at the same time, to make some settlement in regard to boundaries, the maintenance of the constitution, and a fair division of the public debt of the kingdom of the Netherlands. In general, foreign politics so entirely engrossed the thoughts of the congress, that little attention was given to laws relative to the press, juries, municipal organization, &c. Public feeling in Belgium continued warlike: it defied even the London conference; and the language of several members of the Belgian congress was exceedingly violent. When the intelligence from England was rather more favorable, and government received (May 24) information that the Belgian flag would be admitted into the British ports, congress again proceeded to elect a king, June 4, 1831. One hundred and ninety-six members were present; nineteen did not vote; ten were opposed to the election of any king; fourteen voted for Surlet de Chokier; one ballot was inadmissible; the rest of the votes were for prince Leopold, whom the regent declared to be king, on condition of his adopting the Belgian constitution. No acclamation or signs of approbation were heard, however, and the spectators kept silence. A deputation carried a notice of the vote to the prince in London. But, at the same time, a protocol of the London conference (number twenty-six), consisting of eighteen articles, made its appearance, on the adoption of which the declaration of prince Leopold depended. These articles caused a violent debate of nine days, and, at last, were adopted, on July 9, by 126 votes against 70. This result was received with loud applause by the congress and the spectators in the gallery. Belgium longed for peace and order. A deputation carried this resolution to London, and on July 21, 1831, king Leopold took the oath to observe the Belgian constitution,* in Brussels, according to ancient custom, in the open air.

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* The king had lost the confidence of the Belgians by recalling Van Maanen to the ministry, and making him president of the supreme court, and calling the Dutch to arms, Oct. 5.

† The most important counter revolution in favor of the house of Orange was attempted in Ghent, in February, 1831, by colonel Grégoire, a Frenchman, captain de Bart, and a lieutenant Ernest. Another attempt at insurrection, in December, 1831, in the grand-duchy of Luxemburg, by baron Tornaco, failed.

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* The protocol of the London conference of ministers of February 1, excluded the duke of Leuchtenberg, as well as the members of the families of any of the five great powers, from the Belgian throne.

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* The legislative power is exercised collectively by the king, the chamber of representatives, and the senate. The initiative pertains to each of the three branches of the legislative power; nevertheless, every law relating to the revenue and expenditure of the state, or to the contingent of the army, must be first voted by the chamber of representatives. The constitutional powers of the king are hereditary in direct, natural, legitimate descent, from male to male, by order of primogeniture, to the perpetual exclusion of females and their descendants. The king attains his majority at the age of eighteen years. The person of the king is inviolable, but his ministers are responsible. The king appoints and dismisses his ministers, confers ranks in the army, and has the right of granting titles of nobility, without the power of annexing therewith any privilege. He commands the army and navy, declares war and makes peace, and sanctions and promulgates the laws. The chambers assemble by their own right, every year, on the second Tuesday of November, unless convoked earlier by the king. The law fixes the civil list for the duration of each reign. The chamber of representatives is composed of deputies elected by the citizens paying a direct tax determined by the electoral law: the requisite sum cannot exceed 100 florins, nor be less than 20 florins. The number of deputies is apportioned according to population, and it cannot exceed the proportion of one deputy to 45,000 inhabitants. The members of the chamber of representatives are elected for four years, one half being elected every two years: and each member receives 200 florins a month during the session. The members of the senate are elected by the citizens, who elect the members of the chamber of representatives; and their number is equal to one half the number of the representatives. The senators are elected for eight years, one half being elected every four years. A senator must be forty years of age, and must pay a direct tax of 1000 florins. The heir presumptive of the king is of right a senator at the age of eighteen years, but has no deliberative voice till the age of twenty-five. A citizen, in order to be either a deputy or an elector, must be twenty-five years of age. The judges are appointed by the king for life; and a jury is established for all criminal and political offences. Religious liberty, the freedom of the press, liberty of instruction, personal liberty, and the right of petitioning the public authorities, are guarantied.

On the same day, the regent laid down his office, and the constituent congress concluded its sessions. The king of the Belgians summoned the electoral colleges to meet in Brussels, August 29, and the senate and the chamber of representatives September 8. But, August 2, he was attacked by Holland. The struggle lasted only thirteen days, and covered the boasting Belgians with ignominy. France interfered, and prevented the Dutch troops from marching into Brussels; and protocol number thirty-four decreed an armistice of six weeks, which was subsequently prolonged. The king immediately began the reorganization of the army. General Daine and several high officers were dismissed; German and French officers were taken into the service; the native officers were obliged to undergo an examination. The king also sent to London full powers to the Belgian minister, Van de Weyer, in order to treat on the final arrangement with Holland, according to the proposals of the conference. Sir Robert Adair, the British minister, and the French minister, general Belliard, assisted him. September 8, 1831, the chambers met. The most pressing business was the reorganization of the army. The king appointed colonel de Brouckère minister at war. His proposal to introduce French officers into the Belgian army was adopted by the chambers. A committee of inquiry investigated the conduct of the Belgian officers, whose disgraceful conduct, during the war with Holland, had brought the young kingdom to the brink of ruin. General Daine, the commander of the army of the Meuse, who had been shamefully defeated, was, however, acquitted in March, 1832. The French general Desprez was placed at the head of the Belgic staff. Another French general, baron Evain, was also active in the reorganization, and numerous French and German officers and privates entered the Belgian army. A law was even passed empowering the king, in case of necessity, to open the Belgian territory (which had been left by the French auxiliary army on September 26) to foreign troops. The new Belgian army amounted, in October, 1831, to 54,000 men, with 120 cannons; and, in the following March, it was to comprise 86,000 men. The budget of this year, for the Belgian department of war, amounted to 29,553,878 guilders, owing to the great deficiency of military stores and equipments. This explains the great deficit in the finances of the young kingdom. It was necessary to cover it by loans contracted in Paris under hard conditions. In the budget of 1831, the deficit amounted to 9,833,143 guilders; the revenue being 41,892,585, and the expenditure 51,725,728 guilders. According to the budget of 1832, the deficit will amount to 19,372,121, the diminutions in the budget being calculated at 2,000,000 guilders. According to this budget, the ordinary and extraordinary expenses of the government had increased, since the budget of 1831, not less than 37,668,328 guilders, because the expenses occasioned by the public debt, which, in 1831, were only 2,532,028 guilders, have been augmented so much by loans, that the extraordinary and ordinary expenses for 1832 (without the above reduction) amounted to 89,394,048 guilders, and the revenue for this year was only calculated at 68,021,927 guilders, of which the ordinary revenue amounted to 31,421,927 guilders, and the loans yet to be paid, to 36,000,000 guilders.* A protocol from London (October 15, 1831), containing the definitive treaty of peace between Belgium and Holland, consisting of twenty-four articles, concluded in the name of the five great powers present at the conference, was laid before the representatives, October 20, by the minister of foreign affairs, De Meulenaere. He observed that Belgium, though this treaty exacted sacrifices from her, could not think of its rejection since the downfall of Poland. The chamber adopted it on November 1, by fifty-nine votes against thirty-eight, and the senate by thirty-five against eight: king Leopold sanctioned it on November 15. But the king of the Netherlands declared that he did not accept the twenty-four articles. While this monarch continued the negotiations, a new protocol arrived at Brussels, November 12, by which the London conference formally acknowledge prince Leopold as king of the Belgians. Belgic ministers were now duly appointed in Paris and London; at the former court, Lehon, at the latter, Sylvian van de Weyer; but Austria, Prussia, and the other states, would not receive the ministers sent to announce to them Leopold's ascension of the throne, wishing to delay acknowledging him until William, king of the Netherlands, had done so. They long delayed receiving Belgic ministers; and it is but a short time since the semi-official paper, the Austrian Observer, mentioned the kingdom of Belgium for the first time. Meanwhile, the ministers of the five powers in London had signed (November 15) the treaty of twenty-four articles, accepted by Belgium, and, in a twenty-fifth article, had guarantied its execution, and declared that it should be ratified within two months. By the fifty-fourth protocol, this period was prolonged to January 31. But Russia, Austria and Prussia, induced by the representations of king William, still delayed the ratification of the treaty of November 15, appearing desirous to await the declaration of the king of the Netherlands. They considered the alteration of some articles, at least, necessary, and in no case were inclined to force king William to accept the whole twenty-four. In spite of these delays, England, France and Belgium ratified the articles, January 31, 1832, at London; and the protocol of exchange of ratifications was left open for the plenipotentiaries of Russia, Austria and Prussia. A new term was set on March 15; but this was also extended to March 31, in consideration of peculiar circumstances. By the above-mentioned treaty of November 15, which is rejected by Holland, and may yet undergo some changes, 1. Belgium is to consist of the former southern provinces of the Netherlands, with the exception of part of Luxemburg, of Limburg on both the banks of the Meuse, and of Maestricht, with its territory.* 2. Within these limits, Belgium is to be an independent and perpetually neutral state. 3. The free navigation of the rivers is acknowledged, according to the stipulations of the congress of Vienna. 4. The use of the canals, which pass through Belgium and the Northern Netherlands, is common to both countries: the same is the case with the roads between Maestricht and Sittard, for the transit trade to Germany. Belgium may also make here new canals and roads. 5. From January 1, 1832, Belgium is to pay annually 8,400,000 guilders, on account of the public debt of the Netherlands, which is now acknowledged as the public debt of Belgium. Besides this treaty, a protocol had been signed in London by the ministers, with the exception of the French minister, April 17, 1831, according to which a part of the Belgic fortresses were to be razed. When the treaty of November 15 had been adopted by Belgium, France insisted upon the fulfilment of this promise, and Marienbourg, Philippeville, Ath and Menni are said to have been fixed upon. The four powers maintained that they have the right to do as they may see fit for the support of the other Belgian fortresses; but France demanded that the other fortresses should remain under the sole sovereignty of Belgium, free from any superintendence of the four great powers. The ratification of the agreement concluded respecting this point, December 14, 1831, was deferred to March 15, and since that time to a still later period, as it depends upon the adoption of the treaty of November 15, which is not yet decided. During all these transactions, king William remained in a warlike attitude. Belgium, therefore, was also obliged to continue its armaments. At Ghent, Antwerp, Liege, and other points, the government ordered new fortifications to be erected; the chamber of representatives resolved, on December 28, 1831, to

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* The wealthy cities of Belgium also suffered great financial embarrassments. Brussels had, in 1832, a deficit of 800,000 guilders; and in March, 1832, not less than 2000 pauper families received support from Leopold's government.

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* The area of the former southern provinces, with the parts now to be ceded to Holland, is estimated at 13,140 square miles, and the inhabitants (according to Quetelet and Smits) at 4,064,000, two thirds of whom are people living in the country. After the above cession, Belgium would contain about 11,230 square miles, with 3,620,506 inhabitants. The following table is taken from the Weimar Almanac for 1832:

Statistical Table.

Provinces.	Square miles.	Population in 1829.	Chief Towns.	Population.
South Brabant,	1,464	506,930	Brussels,	77,000
East Flanders,	1,232	717,057	Ghent,	84,000
West Flanders,	1,512	580,597	Bruges,	35,000
Hainault,	1,706	574,750	Mons,	20,350
Antwerp,	1,049	343,214	Antwerp,	66,144
Namur,	1,236	197,615	Namur,	17,179
Liege,	2,173	352,230	Liege,	46,983
Limburg,	1,081	198,113		
Luxemburg,	1,144	150,000		

Population of the Principal Towns.

Ghent,	84,000	Louvain,	25,400
Brussels,	77,000	Mons,	20,350
Antwerp,	66,144	Mechlin,	20,284
Liege,	53,683	Namur,	16,179
Bruges,	35,000	Courtray,	15,800
Tournay,	26,976	Ypres,	15,000
Locheran,	13,534	Turnhout,	10,405
St. Nicholas,	12,730	Lierre,	10,397
Alost,	12,221	Ostend,	10,380
Renaix,	10,816	Verviers,	9,962

Classes of Inhabitants.

Belgians,	3,570,000
Jews.	30,000
Germans and Dutch,	10,000
Catholics (1 archbishop, viz. of Louvain, and 7 bishops),	3,570,000
Protestants,	10,000
Jews,	30,000

Universities.

Louvain,	founded in 1426;	students in 1828,	651
Ghent,	" in 1816;	"	395
Liege,	" in 1816;	"	511

put the civic guards on an efficient footing, and to levy 12,000 men for 1832. The army was put on the war establishment, and towards the end of March, 1832, Holland and Belgium stood in a threatening posture towards each other. They remained so subsequently, as the movements of the Dutch administration did not allow the expectation of a peaceable settlement of the difficulties. The cabinet of king Leopold was changed at this time. On December 30, De Theux was made minister of the interior; Meulenaere remained minister of foreign affairs, Coghen was appointed minister of finances, and Raikem of justice. The minister at war, Brouckère, gave in his resignation on March 15, owing to the reductions made by the chamber in his budget, and other causes. Count Felix de Merode took the portfolio temporarily. The most important business of the chambers was the discussion of the budget for 1832. (See above.) We only add here, that the civil list of the king was permanently settled at 1,300,000 guilders, with the use of the royal palaces at Brussels, Antwerp and Laeken. The internal situation of the kingdom is as unfortunate as its foreign relations. The commerce of Antwerp is at present at a stand; that of Ostend has not increased. Robaulx said (March 6, 1832), in the chamber of representatives, probably with some exaggeration, that Belgian industry was in a state of total stagnation. England, he said, had sent to Holland, in the month of November alone, for five millions of such manufactured goods as formerly were obtained from Belgium. These circumstances, and the disappointment of the various parties, explain the disposition for insurrection which has appeared on several occasions. Ghent and Antwerp were declared in a state of siege for this reason. Insurrection, said the minister at war, in the session of the representatives, on January 24, 1832, is publicly recommended; attempts are made to seduce the civic guards and regular troops. It was also necessary to take measures against the Orange press; and the populace, which hates the house of Nassau, went even beyond the public authorities. The liberty of the press, guarantied by the constitution, was flagrantly violated in the case of the editor of the *Messager de Gand*, which caused violent debates in the chambers; and the sentence, already pronounced by a military court (February, 1832), was set aside. The little interest taken in political affairs in Belgium, since the revolution, is proved, among other circumstances, by this, that at the elections of representatives in March, 1832, in Louvain, out of 1600 persons qualified to vote, only 119 appeared; in Liege, of more than 1600 electors, only 194; in Tournay, of 1200, only 371. Disobedience and resistance have often occurred among the civic guards and the soldiers. All these circumstances constantly excited the Orange party, which is numerous, and that of the republicans, to strenuous opposition.* On the 18th of April, England, France, Prussia and Austria finally exchanged ratifications of the twenty-four articles of the Belgian treaty; and, on the 5th of May, the conference, accompanied by Mr. van de Weyer, the Belgian minister, likewise exchanged ratifications with the Russian plenipotentiary. The ratification of the Russian emperor was, indeed, expressed in terms friendly to Holland, and recommended that several modifications of the treaty should be agreed to between Belgium and Holland. On the 12th of June, the conference held a long sitting, in which many of the concessions recommended by Russia to be made to Holland, were agreed upon by the whole of the five powers. At about the same time, the five powers issued a protocol, engaging themselves to prevent hostilities between the two states, and recommending them to renew negotiations with each other. The king of the Netherlands, however, in his answer to the requisitions of the conference (July), declared that, though ready to recognise the administrative, he was not willing to admit the political separation of Belgium from the Dutch provinces, but professed himself not indisposed to treat of that matter, provided his claims were acceded to. He demanded the closing of the Scheldt against the Belgians, the union of Limburg with the Dutch Netherlands, the retention of Luxemburg, and the apportionment of a larger share of the public debt to the Belgic provinces. The Belgian government rejected any idea of new terms of adjustment, and declared that, if the complete evacuation of the Belgian territory by the Dutch troops did not take place by the 20th, the siege of Maestricht would be formed on the following day. Affairs continued in this unsettled and menacing posture, when the connexion of Belgium with France was drawn closer by the marriage (August 9th) of Leopold, elected king of the Belgians, with Louisa Maria Theresa of Orleans, eldest daughter of Louis Philip, elected king of the French. This event seemed to assure Belgium of the warm and permanent support of France. The determination of the British parliament on the subject of the Russian-Dutch loan, was also announced at about this period. The question was this: At the general peace of 1815, an agreement had been made by England and the Netherlands to pay to Russia, by way of annuity, the sum of 50,000,000 florins, for her services and sacrifices in the war, the Netherlands taking upon itself this obligation, in consideration of its great accession of territory, and the acquisition of a secure frontier, and England assuming half the burden, because she retained four Dutch colonies that had been captured during the war. It was a condition of this agreement, that the annuity above mentioned should cease, provided that the possession of the Belgic provinces should be severed from the domain of the king of the Netherlands, previous to the complete liquidation of the loan. The ministerial party in parliament urged that the separation which had taken place was of a nature not contemplated in the original agreement; that it had not been effected by the interference of England; that she still retained the colonies, in consideration of retaining which, she had assumed the obligation; and that she therefore still continued responsible for her share of the debt. In these views, ministers were supported by a majority of both houses. The Dutch king still refused to accede to the treaty of November, and, although urged by the conference to open negotiations with Belgium, for the amicable adjustment of the disputed points, and although Leopold professed himself ready to consent to some reasonable modifications of that treaty, which had been ratified by all the courts of Europe, declared, nevertheless, in a note, addressed to the conference, towards the end of September, that, relying on the support of Divine Providence, he was determined to maintain his honor, without conceding points of vital importance to his kingdom. In these measures of resistance, the Dutch king was warmly supported by the nation, which felt great confidence in its ability to defend them. His army was highly efficient, and his ships and fortresses in the best state of preparation. The Belgians were likewise discontented with the long delays which had taken place, and eager to begin hostilities. In the middle of October, it was decided by the conference that measures should be taken to compel the king of the Netherlands to submit to their terms. Prussia, in a communication transmitted, October 13, to the French ministry, declared her approbation of coercive measures, so far as they had for their object to blockade ports and coasts, but would not consent to the entrance of French troops into Belgium, unless the king of Holland should commit acts of hostility against that power. The ordinary session of the states-general of the Netherlands was opened on the 15th, by a speech from the throne, in which are these words: "I am happy in being able to state to your high mightinesses that the means of defence organized along our frontiers are on the most satisfactory footing, and that our land and sea forces merit the greatest praise for their discipline, their warlike ardor and their fidelity. If the interest of the country should require a greater display of forces, I am prepared with all necessary means for that purpose. The provincial and communal administrations have terminated their labors relative to the levy of the militia and communal guards; our colonies are supplied with the troops and ships necessary for their defence; and our fisheries and commerce have received the requisite protection." To bring this long-protracted dispute to a close, a convention was finally concluded between France and England (October 22), requiring Belgium to surrender Venloo, and Holland Antwerp, by the 2d of November. If this requisition was not complied with by Holland at that date, it was stipulated, between the two contracting powers, that the combined fleet of France and Great Britain should blockade the Dutch ports; and, if Antwerp was not surrendered by the 12th, that a French army should enter Belgium, and begin its march towards that city on the 15th. In the preamble of this convention, the contracting powers express their "regrets that their majesties, the emperor of Austria, the king of Prussia, and the emperor of all the Russias, are not prepared to concur in active measures to carry the treaty into effect." The ordinary session of the Belgian chambers was opened on the 14th November. The following is an extract from the king's speech on the occasion: "After long delays, less injurious, however, to the interests of the country than might be apprehended, the moment is at last arrived when I can comply with the wishes of the chambers and the nation, by leading the powers who were guarantees of the treaty of the 15th November [1831], to insure its execution. Those powers, having acquired the certainty that, in longer abstaining from adopting measures, they would place Belgium in the absolute necessity of doing herself justice, were unwilling to incur the risk of a general war. United by a formal convention, two of them have engaged to begin the execution of the treaty by the immediate evacuation of our territory. The fleets of France and England will fetter the commerce of Holland; and, if these means of coercion are not sufficient, in two days a French army will advance, without troubling the peace of Europe, to prove that the guarantees given are not vain words." In fact, a British order in council of the 6th had already laid an embargo on Dutch vessels in the ports of Great Britain, and, on the 10th and 11th, several divisions of the combined English and French fleet had sailed to begin the blockade of the Dutch coasts. Finally, on the 15th, marshal Gérard entered Belgium at the head of a French army, and directed his march towards Antwerp. Thus the war of the revolutions of 1830 has already begun: its issue we will not pretend to prophesy. We have merely to add that the citadel of Antwerp has a garrison of about 8000 men, is well supplied with provisions and warlike stores, and that most of the works are bomb-proof.

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* At the time when the king was elected, a paper, in which many families of rank in Belgium, particularly in Brussels, Ghent and Antwerp, had shown their desire for the return of the prince of Orange, was given to lord Ponsonby, then British minister in Brussels, to be forwarded to the conference at London. This, however, he did not do, but, on the contrary, as general van der Smissen openly charged him, promoted the election of prince Leopold. It has been said that lord Ponsonby gave this letter to Surlet de Chokier, the regent; but this has been proved to be false. The French cabinet under Laffitte by no means favored the exclusion of the house of Orange from the throne, but, on the contrary, wished this dynasty to remain in Belgium. The letter of De Potter to king Leopold, in the tribune of Paris, in which he terms the Belgic revolution precipitate and fruitless, may be considered a public confession of the republicans. Under these embarrassing circumstances, the king has displayed much prudence, activity and spirit.

Belladonna. (See *Nightshade.*)

Belliard, Augustin Daniel, count de, lieutenant-general, peer of France, and lately French minister in Brussels, distinguished as a general and diplomatist, was born in 1773, at Fontenay-le-Comte, in the Vendée, and entered the military service very early. Dumouriez soon after made him an officer of his staff. He fought at Jemappes, and was raised to the rank of lieutenant-general after the battle of Neerwinden. After Dumouriez had betrayed the convention and fled, Belliard was carried as a prisoner to Paris, and dismissed from the service; but he soon entered the army again as a volunteer, and was again made lieutenant-general, went, in 1796, with Bonaparte, to Italy, fought at Arcole, and was made general of brigade on the field of battle. After the occupation of Civita-Vecchia, he was sent, by Bonaparte, as minister to Naples, in order to begin negotiations. Belliard then accompanied his general to Egypt, where he distinguished himself in the battle of Alexandria, and that of the pyramids. In Upper Egypt, he went beyond the limits of the ancient Roman empire, and penetrated as far as Assyria, in a continual contest with the mamelukes and Arabs. In the battle of Heliopolis, he essentially contributed to the victory. He then attacked, with 1200 men, the Turkish forces in Damietta, which he retook. Whilst he was in Upper Egypt, he warmly aided the men of letters, who accompanied the expedition, in their scientific labors; and without his assistance the antiquities from Denderah to Philæ might have remained undiscovered. When commandant in Cairo, he was besieged by the Turks and English, and obtained a favorable capitulation by his firmness and prudence. In Egypt, he was made general of division, and, in 1801, commander of the division which had its head-quarters at Brussels. In the campaign of 1805, he participated in the victories at Ulm and Austerlitz, and fought in all the great battles in the war with Prussia. After the occupation of Madrid, he was made commandant of the city, where he suppressed the insurrection which broke out in consequence of the battle of Talavera. In 1812, he left Spain to go to Russia, and distinguished himself, particularly in the battle on the Moskwa. After the retreat, he received orders to reorganize the cavalry. At Leipsic, a cannon-ball carried away his arm. After the battle at Craone (1814), Napoleon made him commander of his cavalry and guards. After the abdication of the emperor, he received the order of St. Louis from Louis XVIII, and was made a peer and major-general of the French army, under the command of the duke de Berri. Napoleon returned from Elba, and gave him orders to hasten to king Joachim, in order to direct the operations of the Neapolitan army. The vessel which was to carry him to Naples was chased by a British ship, and obliged to return to France. The Bourbons, after their return, imprisoned him, and placed him under the *surveillance* of the police, but only for a short time, for, in 1816, he was again a peer. Hardly had Louis Philip ascended the throne, when he sent Belliard to Berlin, to treat respecting the acknowledgment of the new dynasty. This mission was soon successful; for, immediately after the king of the Netherlands, England, and the emperor of Austria, had, in fact, acknowledged the king of the French, the king of Prussia did the same. During his embassy in Brussels, Belliard displayed uncommon activity: he contributed more than any other diplomatist to the foundation of the new Belgian government, and to the preservation of the city of Antwerp, when the Dutch general Chassé threatened to lay it in ruins; and, in December, 1830, he was, likewise, very active. In consequence of an order of the French government, communicated by telegraphs, he left Brussels on Tuesday, arrived in Paris on Thursday, hastened to the Tuileries, left Paris the same night, arrived on Sunday in Brussels, had an audience of king Leopold, returned to Paris, where the peers were voting on the subject of the hereditary peerage, and, at the very moment when the secretary called out his name, opened the door in great haste, voted against the hereditary peerage, amid the laughter of his colleagues, and hastened back to Brussels. He died Jan. 27, 1832. The Belgians intend to erect him a monument.

Bellini, Vincenzo, chapel-master at Venice, born in 1808, at Palermo, has already acquired a wide reputation. His first opera which attracted attention was *Il Pirata*, first represented at Milan (probably during the carnival in 1828). It pleased so much that it was soon heard in all the cities of Italy, and found its way into Germany and other countries. In December, 1832, it was represented in New York with great applause. In this work, Bellini has chiefly imitated Rossini, yet with the independence of native genius. He treats the vocal parts according to the taste of the present Italian public, and gives, therefore, a number of *colorature, fioriture*, &c.; but his vocal pieces, especially those for several voices, are composed much more judiciously than those of Rossini. Though inferior in genius to the latter, he is, also, less hasty and negligent. Besides the *Pirata*, he has written the following operas, which have been performed in many Italian theatres, some of them also in France and Germany:—*Bianca e Ferrando; La Straniera; Gli Capuleti e Montecchi* (Romeo and Juliet). In December, 1831, his latest opera, *Norma* (text from a French tragedy of Soumet), was performed in the *Scala* at Milan, but with only partial success, which, however, determines nothing respecting its merit, because in Italy, more than in any other country, secondary circumstances decide the fate of an opera.

Bengalee Year. (See *Epoch.*)

Bentham, Jeremy, died in London, June 6, 1832.

Bentinck. (See *Portland.*)

Bérenger, French deputy, the accuser of Polignac and his colleagues before the peers, is the son of a member of the constituent assembly. He held several inferior offices in Grenoble, and, in 1815, was elected deputy of the department of Drome. June 9, he voted against the hereditary peerage. June 22, 1815, he signed the protest, on the day when Louis XVIII entered Paris. After the dissolution of the chamber, he laid down his office of attorney-general. In 1807, he had published, in Metz, a French translation of Justinian's Novels. He now wrote, in Valence, his work *De la Justice criminelle en France d'après les Lois permanents, les Lois d'Exception, et les Doctrines des Tribunaux*, which was published in Paris in 1818, and is much esteemed. It displays a philosophical spirit, and a great knowledge of the subject. In 1827, he was elected deputy by the inhabitants of Valence. He was one of the commissioners appointed to conduct the impeachment of the ministers of Charles X, on which occasion he displayed, perhaps purposely, more moderation than talent. During Périer's administration, he was one of the centre between the premier and the opposition.

Bergamot. (See *Orange.*)

Biagioli, Josaphat, died in 1831.

Bichat, Marie François Xavier, a celebrated French physician, who, during a short career, gave an impulse to the science which he cultivated that has not yet ceased to be felt, was born at Thoirette, in the department of the Ain, Nov. 11, 1771. His father, a physician, early initiated him into the study of medicine, which the young Bichat prosecuted at Lyons and Paris, to which latter city he withdrew from the storm which agitated the former in 1793. At Paris, he studied under the direction of Desault, who treated him as a son. On the death of that distinguished surgeon (see *Desault*), Bichat superintended the publication of his surgical works, and, in 1797, began to lecture upon anatomy, in connexion with experimental physiology and surgery. From this period, amidst the pressing calls of an extensive practice, he employed himself in preparing those works which have spread his reputation through Europe and America, and which have had the most beneficial influence upon the whole medical science. In the year 1800 appeared his *Traité des Membranes*, which passed through numerous editions, and, immediately after its publication, was translated into almost all the languages of Europe. In the same year was published his celebrated work *Recherches sur la Vie et la Mort*, which was followed the next year (1801) by his *Anatomie Générale* (4 vols., 8vo.), a complete code of modern anatomy, physiology and medicine. In the twenty-eighth year of his age, Bichat was appointed (1800) physician of the Hôtel-Dieu, in Paris, and, with the energy characteristic of true genius, began his labors in pathological anatomy. In a single winter, he opened no less than 600 bodies. He had, likewise, conceived the plan of a great work upon pathology and therapeutics; and, with this view, immediately upon commencing his duties, as physician to the Hôtel-Dieu, had begun his researches in therapeutics by experiments upon the effect of simple medicines. In the midst of this activity and usefulness, he was cut off, July 22, 1802, by a malignant putrid fever, probably the consequence of his numerous dissections. His friend and physician, Corvisart, wrote to Napoleon in these words: "Bichat has just fallen upon a field of battle which counts more than one victim: no one has done so much, or done it so well, in so short a time." Bichat is the founder of the medical theory at present received. He is the creator of general anatomy, or of the doctrine of the identity of the texture of the different organs, which is the fundamental principle of modern medicine. His *Anatomie Générale* has been translated into English by doctor G. Hayward (3 vols., 8vo., Boston, 1822).

Bilderdyk died in December, 1831.

Bill. (See *Parliament.*)

Binding-Bean-Tree. (See *Acacia.*)

Bipont Editions. (See *Deux-Ponts.*)

Birdlime. (See *Holly.*)

Biton. (See *Cleobis.*)

Bittacle. (See *Binnacle.*)

Bitter Spar. (See *Dolomite.*)

Black Death. (See *Plague.*)

Black Locust. (See *Honey Locust.*)

Black Snake. (See *Serpent.*)

Black Vomit. (See *Yellow Fever.*)

Blackmail. (See *Highlands.*)

Bleeding. (See *Phlebotomy.*)

Blomfield, Charles James, was, in 1824, made bishop of Chester, and, in 1828, bishop of London.

Blood-Letting. (See *Phlebotomy.*)

Blue Vitriol. (See *Copper.*)

Boar. (See *Mascaret.*)

Bobbinet. (See *Lace.*)

Bob-O-Link. (See *Rice-Bunting.*)

Bode. This celebrated astronomer died in 1826.

Boigne, count, was born at Chambery, in 1751. In 1768, when seventeen years old, he left his country, and entered the French army, in which he served for five years, then went into the Russian service, was taken prisoner, at the siege of Tenedos, by the Turks, and, after his release, left the Russian army. From 1778 to 1782, he served in the forces of the East India company, and fought against Hyder Ali. Being neglected as a foreigner, he took service with the rajah of Jaypur. He led, in 1784, to Mahajee Scindiah, the celebrated prince of the Mahrattas, two battalions, disciplined in the European manner, and was of the greatest service to this prince during his campaigns against the Mongols and Rajpoots. From 1788 to 1790, he was engaged in commerce at Lucknow; but, at the invitation of Scindiah, he put himself again at the head of an army of that prince, and routed his enemies entirely. The prince heaped honors and riches on him. For the support of the army organized by him, he had the government of the country between Muttra and Delhi, which yielded an annual revenue of five millions and a half rupees (two millions and a half dollars), of which he was allowed to retain two per cent., besides his salary, which amounted to 6000 rupees a month. The army organized by him, consisted, in 1793, of 22,000 infantry and 3000 cavalry. After the death of Scindiah, in 1794, Boigne also served his grand-nephew; but, in 1795, the state of his health obliged him to leave India. He went to England, whither he had remitted his fortune, and thence to his own country. He settled, in 1799, at Chambery, where he did much good in a variety of ways, spending three millions and a half for charitable or benevolent purposes, as the founding of hospitals for the aged and sick, and for travellers, the construction of roads, streets, &c., also for scientific and ornamental purposes. The king of Sardinia made him count; the king of France gave him the cross of the legion of honor. He died June 21, 1830, leaving between fifteen and eighteen millions of francs to his son, and above three millions in benefactions of various sorts. The story, that Tippoo Saib was given up by him is utterly false, because he had been already for three years in Europe, when this prince perished in his capital.—See *Mémoire sur la Carrière Militaire et Pacifique de M. le Général Comte de Boigne* (Chambery, 1829), a work of much interest in respect to the history of the Mahrattas during the last half of the last century, for which Boigne's son furnished the materials to the author.

Bolides. (See *Fire*, *Falling Stars*, and *Meteor.*)

Bolivar. The account of this distinguished individual was brought down to the close of the year 1828, and has been in some measure continued under the heads of *Colombia*, *Paez*, and *Santander*. Having been left, by the defeat of the conspiracy against him, without a rival, in full possession of the civil and military power, Bolivar continued to exercise the chief authority until May, 1830, when, dissatisfied with the aspect of internal affairs, he resigned the presidency, and expressed a determination to leave the country. Venezuela, under Paez, immediately declared herself independent of the central government; and the same spirit of disaffection was manifested by the other provinces. Bolivar, living in retirement at his country seat, refused to take any part in public events, until, after six months of confusion, he was pressed to resume the government, by those who had succeeded him in the administration. He had finally yielded to this urgency, and consented to take the chief command, until the new elections should be completed, declaring it to be his firm resolution then to retire to private life, when he died, at Carthagena, on the 17th of December, 1830. He met death with calmness and resignation, performing, on the 11th, the last act of his public life, by dictating and signing an address to the Colombian nation. From that time, he continued delirious, with occasional lucid intervals, till the day of his death, expressing no other anxiety than for his country. "Union! union!" was his most frequent exclamation. We extract the following summary of his character from the American Annual Register for 1831:—"As a general, Bolivar was distinguished, accomplishing great ends with inadequate means, and confounding his opponents by the rapidity of his movements, and the vehemence of his attacks. Repeatedly defeated, his forces scattered, himself escaping in a remarkable manner, when others despaired, he continued to act, and, with energies irrepressible by adversity, fought on in the great cause he had espoused, until he had expelled the Spanish armies from the American continent, and liberated the new world from the dominion of Spain. As a statesman, he was not so eminent. His views were liberal, but they were often too enlarged for the sphere in which he moved. Seeing his country distracted by domestic dissensions, he deemed it necessary to repress them by a strong executive; and he did not properly rate the danger of subjecting the other branches of the government to the will of an individual. He was, however, the true friend of the independence of his country, and her liberator from foreign domination. With a noble disregard of money, he expended a large fortune in the public service. His disapprobation of slavery was evinced in the emancipation of nearly 1000 slaves belonging to his patrimonial estate; and his refusal of a crown, when tendered by general Paez, demonstrated that, in his aspirations after power, he did not seek to gratify his ambition through a monarchical form of government." General Bolivar was forty-seven years of age at the time of his death.

Bolting. (See *Mill.*)

Bonpland was allowed to depart from Paraguay in February, 1831.

Boring for Water. The practice of boring for water, and the frequent success that has lately attended the operation, in producing a great supply without the actual sinking of a well, render the subject one of great importance: we conceive, therefore, that our readers will be gratified with the following description of the process. The situation of the intended well being determined on, a circular hole is generally dug in the ground, about six or eight feet deep, and five or six feet wide. In the centre of this hole the boring is carried on by two workmen, assisted by a laborer above. The handle, having a female screw in the bottom of its iron shank, a wooden bar, or rail passing through the socket of the shank, and a ring at top, is the general agent to which all the boring implements are to be attached. A chisel is first employed, and connected to this handle by its screw at top. If the ground is tolerably soft, the weight of the two workmen bearing upon the cross-bar, and occasionally forcing it round, will soon cause the chisel to penetrate; but if the ground is hard or strong, the workmen strike the chisel down with repeated blows, so as to peck their way, often changing their situation by walking round, which breaks the stones, or other hard substances, that may happen to obstruct its progress. The labor is very considerably reduced by means of an elastic wooden pole, placed horizontally over the well, from which a chain is brought down and attached to the ring of the handle. This pole is usually made fast at one end as a fulcrum, by being set into a heap of heavy loose stones: at the other end the laborer gives it a slight up-and-down vibrating motion, corresponding to the beating motion of the workmen below, by which means the elasticity of the pole, in rising, lifts the handle and pecker, and thereby very considerably diminishes the labor of the workmen. When the hole has been thus opened by a chisel, as far as its length will permit, the chisel is withdrawn, and a sort of cylindrical auger attached to the handle, for the purpose of drawing up the dirt or broken stones which have been disturbed by the chisel. The auger being introduced into the hole, and turned round by the workmen, the dirt or broken stones will pass through the aperture at bottom, and fill the cylinder, which is then drawn up, and discharged at the top of the auger, the valve preventing its escape at bottom. In order to penetrate deeper into the ground, an iron rod is now to be attached to the chisel by screwing on to its upper end, and the rod is also fastened to the handle by screwing into its socket. The chisel having thus become lengthened, by the addition of the rod, it is again introduced into the hole, and the operation of pecking or forcing it down, is carried on by the workmen as before. When the ground has been thus perforated, as far as the chisel and its rod will reach, they must be withdrawn, in order again to introduce the auger, to collect and bring up the rubbish, which is done by attaching it to the iron rod, in place of the chisel. Thus, as the hole becomes deepened, other lengths of iron rods are added, by connecting them together. The necessity of frequently withdrawing the rods from the hole, in order to collect the mud, stones or rubbish, and the great friction produced by the rubbing of the tools against its sides, as well as the lengths of the rods augmented in the progress of the operation, sometimes to the extent of several hundred feet, render it extremely inconvenient, if not impossible, to raise them by hand. A tripedal standard is therefore generally constructed, by three scaffolding poles tied together, over the hole, from the centre of which a wheel and axle, or a pair of pulley blocks, are suspended, for the purpose of hauling up the rods, and from which hangs the fork. This fork is to be brought down under the shoulder, near the top of each rod, and made fast to it by passing a pin through two little holes in the claws. The rods are thus drawn up, about seven feet at a time, which is the usual distance between each joint; and at every haul a fork is laid horizontally over the hole, with the shoulders of the lower rod resting between its claws; by which means the rods are prevented from sinking down into the bore again, while the upper length is unscrewed and removed. In attaching and detaching these lengths of rod, a wrench is employed, by which they are turned round, and the screws forced up to their firm bearing. The boring is sometimes performed, for the first sixty or a hundred feet, by a chisel of two and a half inches wide, and cleared out by a gouge of two and a quarter diameter, and then the hole is widened by a tool. This is merely a chisel, four inches wide, but with a guide put on at its lower part, for the purpose of keeping it in a perpendicular direction; the lower part is not intended to peck, but to pass down the hole previously made, while the sides of the chisel operate in enlarging the hole to four inches. The process, however, is generally performed at one operation, by a chisel of four inches wide, and a gouge of three inches and three quarters. It is obvious, that placing and displacing the lengths of rod, which is done every time that the auger is required to be introduced or withdrawn, must, of itself, be extremely troublesome, independent of the labor of boring; but yet the operation proceeds, when no unpropitious circumstances attend it, with a facility almost incredible. Sometimes, however, rocks intercept the way, which require great labor to penetrate; but this is always effected by pecking, which slowly pulverizes the stone. The most unpleasant circumstance attendant upon this business, is the occasional breaking of a rod into the hole, which sometimes creates a delay of many days, and an incalculable labor in drawing up the lower portion. When the water is obtained in such quantities and of such quality as may be required, the hole is dressed or finished by passing down it the diamond chisel: this is to make the sides smooth, previous to putting in the pipe. This chisel is attached to rods and to the handle, as before described; and, in its descent, the workmen continually walk round, by which the hole is made smooth and cylindrical. In the progress of the boring, frequent veins of water are passed through; but, as these are small streams, and perhaps impregnated with mineral substances, the operation is carried on until an aperture is made into a main spring, which will sometimes flow up to the surface of the earth. This must of course depend upon the level of its source, which, if in a neighboring hill, will frequently cause the water to rise up and produce a continued fountain. But if the altitude of the distant spring happens to be below the surface of the ground where the boring is effected, it sometimes happens that a well of considerable capacity is obliged to be dug down to that level, in order to form a reservoir, into which the water may flow, and from whence it must be raised by a pump; while, in the former instance, a continued fountain may be obtained. Hence it will always be a matter of doubt, in level countries, whether water can be procured which will flow near to or over the surface: if this cannot be effected, the process of boring will be of little or no advantage, except as an experiment to ascertain the fact. In order to keep the water pure and uncontaminated with mineral springs, the hole is cased for a considerable depth with a metallic pipe, about a quarter of an inch smaller than the bore. This is generally made of tin, (though sometimes of copper or lead), in convenient lengths; and, as each length is let down, it is held by a shoulder resting in a fork, while another length is soldered to it; by which means a continued pipe is carried through the bore as far as may be found necessary, to exclude land springs, and to prevent loose earth or sand from falling in and choking the aperture.

Botargo. (See *Mullet.*)

Böttiger, Charles Augustus, a celebrated German archæologist, was born at Reichenbach, in Saxony, in 1760, and was educated at Leipsic and Göttingen. After having been some time engaged in the business of instruction, he went to Weimar, at the suggestion of Herder, and was director of the gymnasium or high school there from 1791 till 1804. At Weimar, the society of Göthe, Herder, Wieland and Schiller had a favorable effect upon his tastes and progress in learning; and his intimacy with Henry Meyer, in connexion with whom he afterwards published several archæological works, led him to direct his studies to that branch of literature. At this period, Böttiger edited the Journal of Fashion, and, from 1797, the New German Mercury, and was an active contributor to several periodical publications. His principal work, which was never completed, was his Explanation of Ancient Vases (*Vasenerklärung*), in three parts. The object of this work was to give a view of the history of ancient art, with complete notices of the Grecian mythology. Another work of Böttiger's, which has been very favorably received, is his Sabina, or Roman Lady at her Toilet, illustrative of the habits and manners, &c., of the Roman ladies. In 1804, Böttiger received the place of director of the studies of the pages in Dresden, and, in 1815, was appointed overseer of the royal museum of antiques. Here he delivered public lectures upon various subjects of archæology, at different times, some of which have been printed. In 1820, he began to edit a journal devoted to archæography and mythology, under the title of *Amalthea.*

Boulac. (See *Bulac.*)

Bourrienne, Louis Antoine Fauvelet de, secretary of Napoleon, was born July 9, 1769, and formed a friendship with young Bonaparte at the school of Brienne. In 1788, he went to the university of Leipsic to study German and law; afterwards visited Poland; was, in 1792, French secretary of legation in Stuttgart; afterwards lived for a short time, during the same year, in Paris; went again to Leipsic, where he married; was imprisoned in Saxony for two months; afterwards lived in retirement until his former fellow-pupil had commenced his career at the head of the army of Italy, and in 1797, became his secretary. In 1801, he lived with the first consul in the Tuileries, and was made counsellor of state. His knowledge and skill made him useful to Napoleon, and he seems to have by no means a low opinion of his own merits. He appears to have entered into money speculations unbecoming the private secretary of Napoleon, which enabled his adversaries to procure his dismission in 1802. He asserts, on the other hand, that Joseph Bonaparte wished him to engage in speculations, and, upon his refusal, became his implacable enemy. But we shall see what credit is due to Bourrienne's statements, when not supported from other quarters. In 1805, his friends obtained an appointment for him as minister to the members of the Lower Saxon circle; and he went to reside in Hamburg. He did not receive the confidence of the government, because of his leniency towards the emigrants, and because he was strongly suspected of winking, for pecuniary considerations, at the breach of the continental system, and of not being sincerely attached to the government of the emperor. Whatever foundation there may have been for these charges, he tells us himself, in his work mentioned below, that he sent to general Driesen, in the Russian service, a zealous adherent to the count de Provence (Louis XIII), the draft of a royalist proclamation to the French people! and yet he was astonished that the French government treated him with suspicion. He says himself, that from 1810, he believed in the return of the Bourbons. In 1811, he returned to Paris, and vainly flattered himself with the hope of recovering the favor of Napoleon. Towards the end of 1813, he says Napoleon wished him to go to Switzerland, to treat with the allies, offering him, at the same time, orders and the ducal title. But he refused. He and his family were diligently occupied, in the winter of 1813, in transcribing royalist proclamations. By the influence of Talleyrand, he was made director-general of the posts, by the provisionary government; but, soon after the return of Louis XVIII, count Ferrand received his place, and Bourrienne had only the title of counsellor of state. A few days after Napoleon's landing, on his return from Elba, the king made him prefect of the police of Paris. His first charge was to arrest Fouché, who, however, escaped. (See *Otranto*.) Bourrienne followed the king, was sent to Hamburg, wrote in the *Hamburger Correspondent* against Napoleon, returned with the royalists to Paris, but was not employed by the government. In 1815 and 1821, he was elected deputy for the department of Yonne, and, in his report on the budget in 1821, showed a very friendly spirit towards the missionaries and *frères ignorantins*, whilst he hardly allowed the necessary funds for the support of schools and science. He was believed to be the author of the *Histoire de Bonaparte, par un Homme qui ne l'a pas quitté depuis quinze Ans*, and even of the *Manuscrit de Sainte Hélène*. The first he has expressly disavowed; and it soon became known that he did not write the second. But he is the author of *Mémoires de M. de Bourrienne sur Napoléon, le Directoire, le Consulat, l'Empire, et la Restauration* (10 vols., Paris, 1829), a work which attracted great attention, but which does not tend to give an elevated idea of M. de Bourrienne's character. The work is not without value, where its statements are confirmed from other quarters, but contains much that is drawn from doubtful sources, and many misrepresentations, which have been clearly disproved. Generals Belliard, Gourgaud, Davoust, Boulay de la Meurthe, Joseph Bonaparte, Cambacérès, and the Prussian minister Von Stein, have shaken or overthrown the credit of many parts of his book.—See the *Errors, Voluntary and Involuntary, of M. de Bourrienne* (2 vols., Paris, 1830). Bourrienne's work has been translated into English, and has been republished in the U. States. We would recommend an edition (also republished in this country, Philadelphia, 1832, in one volume) "with Notes, now first added from the Dictation of Napoleon at St. Helena, from the Memoirs of the Duke of Rovigo, of General Rapp, of Constant, and numerous other authentic Sources." The work ought not to be read without also consulting the "Errors" above mentioned. It was lately reported in the public prints that M. de Bourrienne had become insane.

Bowring, John, doctor of laws; an English poet, well known for his numerous translations from the poetry of various nations. His travels in various countries of Europe made him acquainted with the languages and manners of the different nations. The first fruits of his acquisitions were the Specimens of the Russian Poets (2 vols., London, 1821—23. His Batavian Anthology (London, 1824), consisting of translations from the earlier and later Dutch poets, is not so striking as the previous work, because the originals are inferior. In the Ancient Poetry and Romances of Spain (London, 1824), published in connexion with Van Dyk, he has presented many Spanish ballads of merit, which had escaped his distinguished predecessor, Lockhart, in his Ancient Spanish Ballads. Subsequently, he produced Specimens of the Polish Poets (London, 1827), and, in the same year, his Servian popular Poetry. His Poetry of the Magyars (London, 1830) makes us acquainted with the productions of the Hungarian muse. His latest work is a collection of Bohemian songs and ballads, Cheskian Anthology (London, 1832); and he is about to publish, in connexion with

Borrow, a translation of Scandinavian songs. His translations are generally faithful and spirited.

Boyle, Charles. (See *Orrery, Earl of.*)

Brank. (See *Buckwheat.*)

Brant. (See *Goose.*)

Breakwater. (See *Delaware Breakwater.*)

Bridgewater, Duke of. (See *Egerton, Francis.*)

Bronchotomy. (See *Tracheotomy.*)

Brooke, Lord. (See *Greville.*)

Broucolacas. (See *Vampyre.*)

Broussais, Francis Joseph Victor, a celebrated French medical writer and physician, was born at St. Malo, in 1772, and pursued his classical studies at the college of Dinan. On the breaking out of the revolution, he served upwards of a year as a grenadier, and was afterwards employed for three years, as surgeon's mate, in the hospitals at Brest and in the navy. His father, a surgeon, had instructed him in surgery, and he had studied anatomy at Brest. Bichat had gone through a similar course of education, having been an anatomist, and a surgeon, before he had become a physician. Broussais, after having served two years more as assistant surgeon, retired from the service in 1798, and devoted himself to the study of botany, materia medica, and of medical works. The next year, he went to Paris, and spent four years there in attending lectures on the medical sciences, and, having received the degree of doctor of medicine, continued in the capital for two years, occupying himself with the study of medical works. At the expiration of that time, he obtained the post of physician in the army, and spent three years in that employment. The state of his health then obliged him to return to Paris, where he published his *Histoire des Phlegmasies, ou Inflammations chroniques* (2 vols., 8vo., 1808). He soon after resumed his post in the army, and was surgeon in chief to the army in Spain for six years, constantly engaged in collecting new results from his observations, and measuring theories by their application to practice. In 1814, M. Broussais returned to Paris, and was appointed second professor at the hospital Val de Grace, and, in 1820, chief physician and first professor at the experimental military hospital of Paris. In 1817 appeared the second edition of his *Histoire des Phlegmasies chroniques*, and his *Examen de la Doctrine médicale généralement adoptée, et des Systèmes modernes de Nosologie*. These, with his Treatise on Physiology applied to Pathology, contain his peculiar system, known under the title of physiological medicine. The first of these works displays extensive knowledge and sound judgment; the second is distinguished for the boldness of its views, and its paradoxical and sophistical spirit. In considering Broussais's system, it is to be borne in mind, that the French school of practical medicine had followed the Pinelian system, which laid particular stress upon the importance of the different tissues of the body in disease, and had found a follower and perfecter in the celebrated Bichat. (See *Bichat*, in this Appendix.) Broussais applied Bichat's doctrine of the life of the different tissues to the diseases of these parts, and particularly to their inflammations, but extended this principle much too far. This system corresponds in many points, particularly as laid down in the *Examen*, with the views of Brown (see *Brown, John*), although Broussais himself affects to have nothing in common with the Brunonian system. According to Broussais, life consists merely in the possibility and the necessity of excitement, or in irritability, and is preserved only when a proper degree of irritability exists. The excitation is sometimes too powerful (*surexcitation*), sometimes too feeble (*adynamie*), but the former is more common than the latter. But in no case are these states, at least primarily, general throughout the system; for the body consists of a great number of organs and tissues, endowed with very different degrees of sensibility, and therefore very differently affected by the same external circumstances. They are all comprised in the three systems, the sanguineous, the lymphatic and the nervous. In all cases, therefore, it is only some particular organ which is diseased, the others being affected by sympathy, and each in a peculiar manner, according to the nature of its tissue, and its specific sensibility. There is no such thing as a general disease, independent of the primary disease of a particular organ; and to determine that organ is the proper purpose of examination. The disease of a particular organ is communicated by sympathy, because the sanguineous and nervous systems are connected together in the most intimate manner, by their minutest ramifications. These sympathies are partly organic, and partly relative (*sympathies de relation*), the former manifesting themselves in the circulatory, secretory and other vital functions, the latter in the sphere of vol untary motion, sensibility, and mental activity. Upon the sympathies depend the indications of the crisis and metastasis, both of which are accidental, and not necessary phenomena, the former indicative of healthy, the latter of morbid sympathies. The sympathetic inflammations of the stomach and small intestines, of the heart and of the brain, are the most common. In the first case, the result is gastro-enteritis; in the second, fever; in the third, neurosis. The gastro-enteritis, being often primary, as well as sympathetic, in its origin, is the most common of diseases, and is, according to Broussais's expression, *la base de la pathologie.* The therapeutic principles of the system are exceedingly simple, leaving little to nature, and considering the method of expecting the crisis not only inefficacious, but injurious, as allowing the disease to confirm and develope itself. Since, in most diseases, there is an inflammation of some particular organ, either primary or secondary, the topical application of antiphlogistics is the first remedy to be employed. As the crisis should be anticipated, the remedy should be powerful; and as gastro-enteritis occurs in almost all diseases, the application of leeches to the region of the stomach is one of the most universal of remedies. Abstinence, diluents, and, in rare cases, general blood-letting, are to be employed as auxiliaries. The stimulant method is rarely indicated, as cases of primary debility are very rare. This system, of which we have here only sketched the outlines, has attracted much attention in France; but, although it has effected some good, does not appear likely to be permanently received. Besides the works of Broussais, we would refer to Spitta's *Novæ Doctrinæ Pathologicæ Epitome* (Göttingen, 1822); see, also, *Les Médicins Français Contemporains* (1827 and 1828), which contains a notice of Broussais.

Brown University. (See *Providence.*)

Brunswick. To what has been said of the duchy of Brunswick in the body of the work, we add a short account of the late events in that state, taken from the American Annual Register for 1830—1831. "The king of England had been the guardian of the minority of the duke of Brunswick; and while exercising that office, it had become necessary to make the institutions of the duchy conform to the change in the circumstances of Germany. To the abolition of the patrimonial jurisdictions, as well as to many arrangements personal to himself, the young duke, on coming of age, objected: and, not content with repudiating the acts of his guardian, he published the most abusive manifestoes against George IV and count Munster, the Hanoverian minister of state, by whom the king's German affairs were principally managed. His royal highness even condescended to send, through the celebrated horse-dealer Tattersall, a challenge to count Munster, to meet him in single combat. The proceedings of the duke of Brunswick were brought to the notice of the diet by the king of England, in his character of king of Hanover; and, as the former prince refused the mediation of Austria and Prussia, and, though only the sovereign of 200,000 subjects, declared that he would rather try the fortune of war than submit to any reconciliation, the assembly of the confederacy had no ground for refusing its interposition. In 1829, every point in controversy was decided against the duke; and he, having declined making an apology, withdrawing his offensive publications, or doing any thing else that was required of him, the diet took, in the following year (1830), efficient means to enforce its decree. The king of Saxony was about moving his troops towards Brunswick, when the death of the king of England suspended his arrangements; and the subsequent conduct of the duke, within his own dominions, rendered unnecessary the further action of any external force. As his royal highness had manifested no more wisdom in the government of his duchy than in his transactions abroad, he was naturally apprehensive lest the popular movements which occurred in France and Belgium, during the summer of 1830, should be imitated elsewhere to his prejudice. To guard against an insurrection in his capital, he had placed cannon in several parts of the town; but, on his return from the theatre on the 6th of September, he was attacked by the mob, from whose fury he only escaped by promising to comply with all their demands. These were, first, the removal of the cannon; second, the confirmation of the constitution granted under the guardianship of the king of England; third, a stipulation not to run away, to evade the edict of the diet; fourth, not to send away his money. The duke, notwithstanding his forced assent, having refused, the next morning, to fulfil his pledge, and intimated that he should employ the cannon to maintain his authority, the insurrectionists proceeded to substantiate their claims by force. The military refused to fire on the citizens: the duke's palace was burned; and he escaped to the frontiers. The brother of the duke was immediately proclaimed sovereign; and he continues to reign as such, with the concurrence of all the principal courts.

Buckeye. (See *Horse-Chestnut.*)

Buckhurst. (See *Sackville.*)

Buckingham, John Sheffield, duke of. (See *Sheffield.*)

Budessin. (See *Bautzen.*)

Bull and **Bear**; terms used on the London stock exchange. (See *Stock Exchange.*)

Bulwer, Edward Earle Lytton, the son of general Bulwer, was born in 1803, and is descended of an old and wealthy family, in the county of Norfolk. His father died in 1806, and his education was superintended by his mother. He entered the university of Cambridge, and, while there, gained a prize for a poem on sculpture. After some metrical productions, Weeds and Wildflowers (1826), and O'Neill or the Rebel (1827), he published his first prose work, the novel called Falkland (1827); and in 1828 appeared his Pelham, which first attracted much attention to him. This was followed, in 1829, by the Disowned, and Devereux, the latter of which is a historical romance. Paul Clifford (1830) is a political satire. In 1831, he published a satire in verse, the Siamese Twins, and, in 1832, his novel of Eugene Aram. Since 1832, he has been the editor of the New Monthly Magazine. He is now a member of parliament. His brother Henry has been in parliament a number of years. Bulwer's novels contain much vigorous painting of scenes and characters, disfigured by a too ambitious style. Their moral tone is low, and their general tendency to make profligacy agreeable.

Burnouf, Eugène, orientalist at Paris, and secretary of the Asiatic society there, occupies himself chiefly with the study of Indian languages and ancient Persian. He first made himself known by a work which he published in connexion with professor Lassen, in Bonn—*Essai sur le Pali, ou Langue sacrée de la Presque île au-delà du Gange* (Paris, 1828), in which he treats of the Pali language, a branch of the Sanscrit, in which the sacred books of the Buddhists, in Ceylon and the Birman empire, are written. The Pali was, until then, almost entirely unknown. In the *Journal Asiatique*, Burnouf published several interesting essays, e. g. on the Tamul alphabet (April, 1818), on some geographical names in the Tamul territory (October, 1828), on the Siamese language (September, 1829), and extracts of several Puranas. His most important work is the edition of *Vendidad-Sade*, an important part of the *Zend-Awesta* (Zend-Avesta), in the Zend language: *Vendidad-Sadé, l'un des Livres de Zoroaste publié d'Après le Manuscrit Zend de la Bibliothèque du Roi, avec un Commentaire, une Traduction Nouvelle et un Mémoire sur la Langue Zende considérée dans ses Rapports avec le Sanskrit et les anciens Idiomes de l'Europe.* In May, 1832, eight numbers of the Zend text had appeared (lithographed, folio). A specimen of the commentary which is to follow, has appeared in the *Journal Asiatique* (May, 1829); and Bopp (q. v.) has, in the mean time, communicated several important observations on the Zend language, in the Annals for Scientific Criticism (in German), as the Zend text, now published, renders the study of this language practicable. The resemblance of the Zend to the Sanscrit, but at the same time its independent character, are becoming more and more apparent. In 1832, Burnouf was elected member of the academy of inscriptions.

Burr, Aaron, president of the college at Princeton, New Jersey, was born at Fairfield, Connecticut, in 1714, and graduated at Yale college, in 1735. In 1742, he was invested with the pastoral charge of the Presbyterian church at Newark, New Jersey, where he became conspicuous by his talents and learning. In 1748, he was elected the successor of Mr. Dickinson to the presidency of the college then at Elizabethtown, and afterwards removed to Newark, and thence to Princeton. He discharged the duties of that station with great dignity, popularity and usefulness, till his death, in September, 1757. He was distinguished for force and elegance of mind, learning, eloquence and excellence as a preacher, piety, public spirit and popularity, knowledge of human nature, polish of manners, and facility of communicating knowledge. His wife was the daughter of the reverend Jonathan Edwards, of Northampton, and possessed superior endowments, knowledge and piety. His son, Aaron Burr, became vice-president of the U. States.

Burzenland. (See *Cronstadt.*)

Bustamente. (See *Mexico*, and *Santa Aña.*)

Butter-Cups. (See *Ranunculus.*)

Buttonwood. (See *Plane Tree.*)

C.

Caaba. (See Kaaba.)

Cabbage-Tree. (See *Palmetto*.)

Cadet de Vaux died in 1828.

Calabash. (See *Passion-Flower*.)

Calculating Machine. From doctor Brewster's Natural Magic we extract the following account of the calculating machine, now preparing by Mr. Babbage for the British government:—Of all the machines which have been constructed in modern times, the calculating machine is doubtless the most extraordinary. Pieces of mechanism, for performing particular arithmetical operations, have been long ago constructed; but these bear no comparison, either in ingenuity or in magnitude, to the grand design conceived, and nearly executed, by Mr. Babbage. Great as the power of mechanism is known to be, yet we venture to say that many of the most intelligent of our readers will scarcely admit it to be possible that astronomical and navigation tables can be accurately computed by machinery; that the machine can itself correct the errors which it may commit; and that the results of its calculations, when absolutely free from error, can be printed off, without the aid of human hands, or the operation of human intelligence. All this, however, Mr. Babbage's machine can do. The calculating machine now constructing under the superintendence of the inventor, has been executed at the expense of the British government, and is, of course, their property. It consists essentially of two parts, a calculating part, and a printing part, both of which are necessary to the fulfilment of Mr. Babbage's views; for the whole advantage would be lost if the computations made by the machine were copied by human hands and transferred to types by the common process. The greater part of the calculating machinery is already constructed, and exhibits workmanship of such extraordinary skill and beauty, that nothing approaching to it has been witnessed. In order to execute it, particularly those parts of the apparatus which are dissimilar to any used in ordinary mechanical constructions, tools and machinery of great expense and complexity have been invented and constructed; and, in many instances, contrivances of singular ingenuity have been resorted to, which cannot fail to prove extensively useful in various branches of the mechanical arts. The drawings of this machinery, which form a large part of the work, and on which all the contrivance has been bestowed, and all the alterations made, cover upwards of 400 square feet of surface, and are executed with extraordinary care and precision. In so complex a piece of mechanism, in which interrupted motions are propagated simultaneously along a great variety of trains of mechanism, it might have been supposed that obstructions would arise, or even incompatibilities occur, from the impracticability of foreseeing all the possible combinations of the parts; but this doubt has been entirely removed, by the constant employment of a system of mechanical notation invented by Mr. Babbage, which places distinctly in view, at every instant, the progress of motion through all the parts of this or any other machine; and, by writing down in tables the times required for all the movements, this method renders it easy to avoid all risk of two opposite actions arriving, at the same instant, at any part of the engine. In the printing part of the machine, less progress has been made in the actual execution than in the calculating part. The cause of this is the greater difficulty of its contrivance, not for transferring the computations from the calculating part to the copper or other plate destined to receive it, but for giving to the plate itself that number and variety of movements which the forms adopted in printed tables may call for in practice. The practical object of the calculating engine is to compute and print a great variety and extent of astronomical and navigation tables, which could not be done without enormous intellectual and manual labor, and which, even if executed by such labor, could not be calculated with the requisite accuracy. Mathematicians, astronomers and navigators do not require to be informed of the real value of such tables; but it may be proper to state, for the information of others, that seventeen large folio volumes of logarithmic tables alone were calculated at an enormous expense, by the French government, and that the British government regarded these tables to be of such national value, that they proposed to the French board of longitude to print an abridgment of them, at the joint expense of the two nations, and offered to advance £5000 for that purpose. Besides logarithmic tables, Mr. Babbage's machine will calculate tables of the powers and products of numbers, and all astronomical tables for determining the positions of the sun, moon and planets; and the same mechanical principles have enabled him to integrate innumerable equations of finite differences; that is, when the equation of differences is given, he can, by setting an engine, produce, at the end of a given time, any distant term which may be required, or any succession of terms commencing at a distant point. Besides the cheapness and celerity with which this machine will perform its work, the absolute accuracy of the printed results deserves especial notice. By peculiar contrivances, any small error, produced by accidental dust, or by any slight inaccuracy in one of the wheels, is corrected as soon as it is transmitted to the next; and this is done in such a manner as effectually to prevent any accumulation of small errors from producing an erroneous figure in the result. In order to convey some idea of this stupendous undertaking, we may mention the effects produced by a small trial engine, constructed by the inventor, and by which he computed the following table from the formula x^2+x+41. The figures, as they were calculated by the machine, were not exhibited to the eye, as in sliding rules, and similar instruments, but were actually presented to the eye, on two opposite sides of the machine, the number 383, for example, appearing in figures before the person employed in copying.

Table calculated by a small Trial Engine.

41	131	383	797	1373
43	151	421	853	1447
47	173	461	911	1523
53	197	583	971	1601
61	223	547	1033	1681
71	251	593	1097	1763
83	281	641	1163	1847
97	313	691	1231	1933
113	347	743	1301	2021

While the machine was occupied in calculating this table, a friend of the inventor undertook to write down the numbers as they appeared. In consequence of the copyist writing quickly, he rather more than kept pace with the engine; but as soon as five figures appeared, the machine was at least equal in speed to the writer. At another trial, thirty-two numbers of the same table were calculated in the space of two minutes and thirty seconds; and as these contained eighty-two figures, the engine produced thirty-three figures every minute, or more than one figure in every two seconds. On another occasion, it produced forty-four figures per minute. This rate of computation could be maintained for any length of time; and it is probable that few writers are able to copy with equal speed for many hours together. Some of that class of individuals who envy all great men, and deny all great inventions, have ignorantly stated that Mr. Babbage's invention is not new. The same persons, had it suited their purpose, would have maintained that the invention of spectacles was an anticipation of the telescope; but even this is more true than the allegation, that the arithmetical machines of Pascal and others were the types of Mr. Babbage's engine. The object of these machines was entirely different. Their highest functions were to perform the operations of common arithmetic. Mr. Babbage's engine, it is true, can perform these operations also, and can extract the roots of numbers, and approximate to the roots of equations, and even to their impossible roots. But this is not its object. Its function, in contradistinction to that of all other contrivances for calculating, is to embody in machinery the method of differences, which has never before been done; and the effects which it is capable of producing, and the works which, in the course of a few years, we expect to see it execute, will place it at an infinite distance from all other efforts of mechanical genius.*

Calico-Bush. (See *Kalmia.*)

Caliyug. (See *Epoch.*)

Camarilla; a word first used in Spain, but now in other countries also, to express the influence of certain persons in obstructing the operation of the official organs of government. When Ferdinand VII, in 1814, returned to Spain, he was surrounded by flatterers, who prevailed upon him to violate his promise of giving the people a constitution. They were called *camarilla*, either from the room where they remained in waiting, or in allusion to the council of Castile (*camara de Castilla*). Until the revolution of 1820 (see *Spain*), this *camarilla* consisted mostly of men without talent, but passionately opposed to every thing new; but when the king recovered his power, in 1823, they became more influential, and have since repeatedly interfered with the ministers. The thing itself is old enough: priests, favorites and women have often formed *camarillas* in monarchies and other governments. The word was much used in France during the reign of Charles X, as its Spanish origin suggests the influence of priests, which was also great, at that time, in France.

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* A popular account of this engine will be found in Mr. Babbage's interesting volume *On the Economy of Manufactures.*

Camblet. (See *Camlet.*)

Camden (Charles Pratt), earl of, a distinguished British lawyer and statesman of the last century, was the son of sir John Pratt, chief justice of the king's bench, and was born in 1713. After studying at Eton and King's college, Cambridge, where he took the degree of M. A., in 1739, and obtained a fellowship, he entered as a student at Lincoln's inn, and, in due time, was called to the bar. In 1754, he was chosen member of parliament for the borough of Downton. After acquiring great reputation as an advocate, he was, in 1759, appointed attorney-general, having, the same year, been elected recorder of the city of Bath. In January, 1762, he was called to the dignity of a serjeant-at-law, and elevated to the office of chief justice of the common pleas, when he received the honor of knighthood. While he presided in this court, Wilkes was arrested on a general warrant, as the author of the North Briton, a periodical paper which gave offence to government. He was committed to the Tower, as a state prisoner; and, being brought, in obedience to a writ of habeas corpus, before the court of common pleas, the lord chief justice Pratt discharged him from his confinement, on May 6, 1763. The behavior of the judge on this occasion, and in the consequent judicial proceedings between the printers of the North Briton and the messengers of the house of commons, and other agents of the ministry, was so acceptable to the metropolis, that the city of London presented him with the freedom of the corporation, in a gold box, and requested to have his picture. In July, 1765, he was raised to the peerage, by the title of baron Camden; and about a year after, he was made lord chancellor. In this capacity, he presided at the decision of a suit against the messengers who arrested Mr. Wilkes, when he made a speech, in which he stated, that "it was the unanimous opinion of the court, that general warrants, except in cases of high treason, were illegal, oppressive and unwarrantable." On his opposing the taxation of the American colonies, he was deprived of the seals, in 1770. He came into office again, as president of the council, under the administration of the marquis of Rockingham, in March, 1782; on whose death, he resigned, the following year. He soon after, however, resumed his place under Mr. Pitt, and, in 1786, was made earl Camden. He died April 18, 1794. He is said to have been the author of a pamphlet, entitled an Inquiry into the Nature and Effect of the Writ of Habeas Corpus.

Campeachy Wood. (See *Logwood.*)

Candaules. (See *Gyges.*)

Candleberry Myrtle. (See *Myrtle-Wax.*)

Canonicut. (See *Connanicut.*)

Canvass-Back Duck. (See *Duck.*)

Cape Haytien is erroneously said to be the capital of Hayti. Port Républicain (q. v.) is the capital of the republic.

Cape Sheep. (See *Albatross.*)

Capillary Attraction. (From vol. ix of *Foreign Quart. Review.*) The mutual action of the elementary particles of matter, of which capillarity is a noted instance, gives rise to phenomena as interesting, and, in certain cases, as susceptible of being attached to theory, by rigorous mathematical reasoning, as the phenomena of universal gravitation. The ascent of liquids in capillary tubes engaged much of the attention of experimental philosophers about the beginning of the last century. Hauksbee found that the ascent of the liquid does not depend in any way on the thickness of the tube, and that when two plates, forming any small angle with each other, are plunged vertically into a fluid, the fluid which rises between them takes the form of an equilateral hyperbola; from which it followed, that, in tubes of the same matter, the ascent of the liquid follows the inverse ratio of their interior diameters. In order to explain these facts, all succeeding philosophers seem to have agreed in assuming the existence of a cohesive force among the particles of the liquid, and an adhesive force between the particles of the liquid and those of the tube. But these attractive forces can only be defined by their relative intensities at an equal distance, and the law according to which they diminish as the distance is increased. Now, there are no data from which either their relative intensities or the law of their variation can be determined: we are, therefore, reduced to choose among a number of hypothetical laws, all equally possible; and the explanation, of course, depends on the particular hypothesis we adopt; hence the theories of Clairaut, Young, Laplace and Poisson. Clairaut was the first who attempted to reduce the phenomena of capillarity to the laws of the equilibrium of fluids, and exactly analyzed all the forces that concur to elevate the liquid in a glass tube. He showed that the portion of the liquid which is elevated in the tube above the exterior level, is kept in equilibrium by the action of two forces, one of which is due to the attraction of the meniscus terminating the column, and the other to the direct attraction of the tube on the molecules of the liquid. Clairaut, however, regarded this last force as the principal one, and even supposed the attraction of the tube to extend as far as its axis; but this supposition is contrary to the nature of molecular forces, which extend only to insensible distances. The action of the tube has, in fact, no influence on the elevation or depression of the contained liquid, excepting in so far as it determines the angle under which the upper surface of the fluid intersects the sides of the tube. Neglecting, therefore, this force as insensible, there remains only the action of the meniscus to support the weight of the elevated column. But though Clairaut made an erroneous supposition respecting the nature of molecular action, and failed in the attempt to demonstrate from theory, that the ascent of the liquid is inversely proportional to the diameter of the tube, he showed that a number of hypotheses, regarding the law of attraction, may be laid down, from any one of which that law of ascent may be deduced; and he demonstrated a very remarkable result, namely, that if the attraction of the matter of the tube on the fluid differs only by its intensity, or co-efficient, from the attraction of the fluid on itself, the fluid will rise above the surrounding level when the first of these intensities exceeds half the second. Young referred the phenomena of cohesion to the joint operation of attractive and repulsive forces, which, in the interior of fluids, exactly balance each other, and assumed the repulsive force to increase in a higher ratio than the attractive, when the mutual distances of the molecules are disminished. From these considerations, he was led to discover a very important fact in the theory of capillary action, namely, the invariability of the angle which the surface of the fluid makes with the sides of the tube. Laplace published his theory of capillary attraction in 1806 and 1807, in two Supplements to the *Mécanique Céleste.* Assuming the force of molecular action to extend only to imperceptible distances, he demonstrated that the form of the surface of the liquid is a principal cause of the capillary phenomena, and not a secondary effect, and determined the part of the phenomena which is due to the cohesive attraction of the molecules of the fluid to each other, as well as that which results from their adhesion to the molecules of the tube. The separate consideration of the cohesive and adhesive forces leads to two equations, which comprehend the whole theory of capillarity—a general equation, common to all those points of the capillary surface of which the distance from the sides of the tube is greater than the radius of the sphere of molecular action; and a particular equation belonging to those points which are situated only at insensible distances from the surface of the tube, or are within the sphere of its action. This last equation will obviously express the angle which the surface of the meniscus makes with the sides of the tube; an angle which, as it depends only on the nature of the tube and that of the liquid, is constant, and given in every case, the liquid and tube being supposed homogeneous. Laplace further supposes, in the case of elevation, that an infinitely thin film of the liquid first attaches itself to the sides of the tube, and thus forms an interior tube, which acts by its attraction alone to raise the column, and maintain it at a determinate height. The height of the column, consequently, depends on the cohesion and density of the liquid. Poisson has reinvestigated the whole theory of capillary attraction. Taking the most general case of the problem, he considers not merely the surface of a single liquid, but the surface formed by the contact of two liquids of different specific gravities, placed, the one above the other, in the same tube, and deduces the two equations which determine the form of the separating surface, and the angle under which it intersects the sides of the tube. These equations are, in form, the same as those of Laplace; but the definite integrals, which express the two constant quantities they include, are very different; and their numerical values would be so likewise, if these, instead of being determined experimentally, could be calculated *a priori* from the analytical expressions. This, however, cannot be done without a knowledge of the law according to which the molecules of the liquid attract each other, as well as of that which regulates the action of the tube on the liquid. In applying his general solution to the explanation of the principal phenomena of capillarity, he has taken occasion to correct some inaccuracies of Laplace. The demonstration which Laplace had given of the invariability of the angle which the surface of the liquid makes with the sides of the tube, was not altogether satisfactory; and he had even supposed that it changes its value when the liquid reaches the summit of the tube. Poisson has demonstrated that the invariability of this angle will always be preserved, unless the curvature of the interior of the tube is infinitely great; or, in other words, unless its radius is infinitely small, and of the same order of magnitude as the radius of the sphere of molecular action. Hence the angle cannot vary when the liquid reaches the summit of the tube; for, however small the radius of the tube may be, it is always incomparably greater than the radius of the sphere of molecular action. The great importance of the theory of molecular action, in physical science, is becoming daily more apparent; and it must soon form the principal basis of rational mechanics, which has too long continued an abstract science, founded, not on a real, but an imaginary state of bodies. The gradual progress of discovery renders it more and more probable, that there are only two laws according to which all the forces of nature decrease, the first being proportional to the inverse square of the distance, and the second to a function of the distance of which we know nothing, except that it vanishes altogether when the distance has a sensible magnitude. The gravitation of the great bodies of the universe, the electric and magnetic forces, whether attractive or repulsive, are instances of the former; while the vibrations of elastic bodies, the communication of motion, whether by shock or by pressure, as well as capillary attraction, the refraction of light, and chemical actions, depend on the latter, which is the law of the molecular forces. Now, it is from this last class of forces that the laws of equilibrium and motion ought to be deduced, and not from hypotheses entirely gratuitous respecting the absolute hardness, rigidity and incompressibility of bodies—qualities which have no existence in nature. The only obstacle to the attainment of this desirable result seems to be the difficulties of the calculus. It is, indeed, impossible to deduce the laws of motion from the action of molecular forces in any other manner than by the application of a very refined and difficult analysis; yet the subject presents some facilities, and there are considerations which go far to obviate the mathematical difficulties. For example, in deducing the equations of equilibrium of solid and liquid bodies, it is not necessary to compute the total force acting on an isolated molecule. These equations depend on the resultant of actions which take place between two portions of the same body, of insensible magnitude, but comprising each an extremely great number of molecules. The resultant of the aggregate forces of the different molecules comprehended within the sphere of action of an individual molecule, is, therefore, a determinate function of their mean distance, and independent of any irregularity in their distribution. The same resultant is also independent of the magnitude of the radius of the sphere of action, which cannot be determined in any precise manner, and with respect to which we only know that it is insensible. It is on these hypotheses that the computation of molecular forces is essentially founded.—See Poisson's *Nouvelle Théorie de l'Action Capillaire* (Paris, 1831).

Capo d'Istria. Our account of this individual, contained under his name, is continued by the history of his administration, under the head *Greece, Revolution of.* It remains for us to give an account of his assassination, and of the causes which produced it. Whether from his attachment to Russian interests, or from the jealousy and impatience of restraint of the chiefs, Capo d'Istria had become extremely unpopular; and the islands and the province of Maina placed themselves, in the spring of 1831, in the attitude of open resistance to the government. Miaulis (q. v.), Mavrocordato (q. v.) and Conduriottis demanded a convocation of the national assembly, the establishment of the liberty of the press, and the release of certain state prisoners, among whom was Mavromichalis. (q. v.) A provisional government was established, under these leaders, and the insurgents took possession of Poros, with the Hellas and the rest of the Greek fleet lying in that harbor. In August, a Russian fleet appeared off Poros, which stood in to attack the ships, while the troops of the president attacked the town. Miaulis, however, blew up the ships, to prevent their falling into the hands of the Russians; and the troops of the president, which found Poros deserted by its inhabitants, reduced it to ashes. Meanwhile, the Mainots were acting against the government by land; but the appearance of the Russian fleet in the gulf of Coron obliged Miaulis, who had been coöperating with the Mainots with a small squadron, to destroy it, as he had previously done the Greek fleet in Poros. In October, George, the son, and Constantine, the brother of Pietro Mavromichalis, repaired to Napoli di Romania, for the purpose of assassinating the president; and they accomplished their object on the 9th, at the door of the church. The one discharged a pistol at his head, the other stabbed him in the back, and he fell dead upon the spot. Constantine was immediately put to death by the bystanders, and George was detained in custody.

Capsicum. (See *Cayenne Pepper.*)

Car, Robert. (See *Overbury.*)

Caracal. (See *Lynx.*)

Cardinal Bird. (See *Grosbeak.*)

Cardinal Flower. (See *Lobelia.*)

Carding Engine. (See *Cotton Manufacture.*)

Carignano. The prince of Carignano is now king of Sardinia. (See *Sardinia.*)

Carlisle, Earl of. (See *Howard, Frederic.*)

Carlos, don Maria Isidro, Infant of Spain, second son of Charles IV, and brother of Ferdinand VII, was born in March, 1788, and, in 1816, married Maria Francisca d'Assisi, daughter of John VI, king of Portugal, by whom he has three sons—Carlos, born in 1818; Juan, born in 1822; and Fernando, born in 1824. The prince shared with his brothers (see *Ferdinand VII*) the captivity of Valençay, after having previously signed with them the act renouncing all claims to the throne of Spain. In March, 1814, he returned with them to Spain, and, from that time, continued attached to the court of Ferdinand, and accompanied him, in 1823, when the cortes were in the ascendant, to Cadiz. It was not until after the restoration of absolute monarchy (Oct. 1, 1823) that he attracted the public attention. His principles in respect to the monarchy, the church and the inquisition; his hatred of the free-masons and liberals; his notions of absolute power; and the circumstance that, owing to the infirm health of the king, who had no children, the crown might soon be placed upon his head, together with the great favor which he enjoyed with the royal troops—rendered him, perhaps without his aiming at it, the rallying point of the violent counter-revolutionary faction, called the *apostolical junta*, which has agitated Spain since 1824, and repeatedly menaced the throne of Ferdinand. This fanatical party clamored for the utter extermination of the liberals and the free-masons, the restoration of the inquisition, and an absolute king, under the management of the clergy. Ferdinand was by no means disposed to yield to the wishes of this faction, but often followed the advice of foreign courts, and listened to moderate counsellors. He was, therefore, in their eyes, a prisoner, who was surrounded by bad influences; and it became their object to remove him from the throne. They accordingly coöperated with the absolutists in Portugal, who had similar designs in regard to that country. Repeatedly put down by force, the followers of the junta were not discouraged, and their secret leaders were never discovered. In their various conspiracies, though probably without his consent or knowledge, the name of the Infant don Carlos was made use of to serve their purposes. In 1825, Santos Ladron, and the notorious Antonio Maragnon, a runaway Trappist, raised the standard of revolt in Navarre, with cries of *Viva el rey absoluto don Carlos V, y muera la nazion!* (Long live the absolute king Charles V, and death to the nation). In Valencia, Grenada and other provinces, similar scenes occurred. Bessières also appears to have organized his insurrection, the pretence of which was the deliverance of the king from the hands of his ministers, under the direction of the apostolical junta; but he was taken and shot (Aug. 26, 1826) before he could accomplish his plan. (See *Zea-Bermudez.*) Still several guerilla leaders in Cervera, general Chambo in Valencia, and the canons of Tolosa, ventured to proclaim Charles V absolute king; and, at last, an open rebellion broke out in Catalonia, in September, 1827. The cry of the 14,000 insurgents, who called themselves *Agraviados*, was, Death to Ferdinand! Long live Charles V! Hurrah for the Inquisition! Medals were struck with his effigy, and the inscription Charles V, King of Spain; and a regular government was organized in his name. The government finally laid the storm, general España, at the head of 20,000 troops of the line, having defeated the rebels. The king naturally entertained some suspicions of his brother, and an open rupture between them ensued, when, on the death of his third wife, Ferdinand determined to marry a fourth time, and thus endanger his brother's succession. The marriage took place in December, 1829; and, in 1830, the hopes of the apostolic party were disappointed by the pragmatic sanction of March 29, abolishing the Salic law, which excluded females from the throne. In September, riots occurred in the vicinity of the palace, which seemed to have been got up by the Carlists for the purpose of alarming the queen, then in a delicate situation. On the 12th of October, she was safely delivered of a daughter, who, as heiress of the throne, received the title of princess of Asturias. In October, 1832, the king's life being despaired of, don Carlos and his partisans began openly to take measures for securing his succession to the throne: but the queen, who had been placed at the head of the government during the king's sickness, and who was convinced that the apostolical party, if left in power, would exclude her family from the throne, removed them from the ministry, and filled the chief offices of the government with men of moderate or liberal principles. Don Carlos was ordered to retire into Grenada; and it has since been said that he was about to quit the kingdom with his family.

Carnac. (See *Thebes.*)

Carob-Tree. (See *St. John's Bread.*)

Carroll, Charles, for many years the last survivor of the signers of the Declaration of Independence, was born at Annapolis, in Maryland, on the 20th of September, 1737. His grandfather, an Irish Catholic of rank, educated for a barrister, emigrated from Ireland to Maryland in the year 1691. The "surviving signer" received his classical instruction on the continent of Europe, at the college of Louis le Grand, studied the civil law at Bourges, and completed his general education in Paris. Thence he repaired to London, where he took apartments in the Temple for a course of British jurisprudence. In 1764, he came back to Maryland, to enter upon a princely inheritance. Embarking in politics, he exerted his talents and influence against the stamp act, with as much earnestness as if he had nothing to lose, and had never lived under monarchical rule abroad. In 1770, he distinguished himself, particularly by opposing a stretch of prerogative on the part of the royal governor of Maryland, in a series of essays, signed the First Citizen, that obtained a complete triumph for the popular party, and for the author, even before he was ascertained, fervid compliments and thanks from all quarters. His decided and active participation, during the years 1773, 1774, and 1775, in all the measures of resistance to the ministerial policy, confirmed the confidence of the people in his dispositions and abilities. Testimony is furnished of his having, as early as 1772, foreseen and resolved to breast the occurrence of war. Some years before the commencement of actual hostilities, he wrote to a member of parliament,—"Your thousands of soldiers may come; but they will be masters of the spot only on which they encamp. They will find nought but enemies before and around them. If we are beaten on the plains, we will retreat to our mountains, and defy them. Our resources will increase with our difficulties. Necessity will force us to exertion, until, tired of combating in vain against a spirit which victory after victory cannot subdue, your armies will evacuate our soil, and your country retire an immense loser from the contest. No, sir; we have made up our minds to abide the issue of the approaching struggle; and, though much blood may be spilt, we have no doubt of our ultimate success." Mr. Carroll entered the provincial convention in 1775, and, previous to his election as a member of congress, in 1776, was deputed, by the latter body, to Canada, with Franklin and Chase. He returned from his mission during the discussion in congress of the subject of independence, with an avidity for the declaration which prompted him to every endeavor for the immediate conversion of the Maryland legislature to that measure. He did not take his seat in congress until the 18th of July; and the case of the signature to the instrument is thus authentically explained in his biography: "Although Mr. Carroll did not vote on the question of independence, yet he was among the earliest of those who affixed their signatures to its declaration. The printed journals of congress, indeed, make it appear that the Declaration of Independence was adopted and signed on the 4th of July, by the gentlemen whose names are subscribed to it under the head of that date; but the impression thus given is incorrect, because, in fact, not one signature was affixed to the declaration until the 2d of August. The idea of signing does not seem to have occurred immediately; for not until the 19th of July, as will appear by reference to the secret journals, did the resolution pass, directing the declaration to be engrossed on parchment. This was accordingly done; and, on the 2d of August following, when the engrossed copy was prepared, and not before, the declaration was signed by the members who on that day were present in congress. Among these was Mr. Carroll. Those members who were absent on the 2d of August, subscribed the declaration as soon after as opportunity offered." Mr. Carroll served assiduously as a member of the board of war, and continued in congress until the year 1778, after which he confined himself to the internal state business. In the year 1781, he was re-elected to the senate of Maryland, in which he had already served five years, and, in 1788, was chosen to represent Maryland in the senate of the U. States, immediately after the adoption of the federal constitution. Since 1801, he has lived in retirement. The faithful language of his biographer is the best we can use in concluding this notice of him. "In 1791, Mr. Carroll vacated his seat in the senate of the U. States, and, in the same year, was once more chosen to the senate of Maryland. In 1796, he was again reëlected, and, in 1797, was one of the commissioners appointed to settle the boundary line between Virginia and Maryland. Mr. Carroll continued an active member of the senate of his native state until 1801, when the democratic party carried their ticket, and he was left out. In the year last mentioned he retired from public life, after having been a member of the first committees of observation, twice in the convention of Maryland, twice appointed delegate to congress, once chosen representative to the senate of the U. States, and four times elected a senator of Maryland. In 1825, one of Mr. Carroll's grand-daughters was married to the marquis of Wellesley, then viceroy of Ireland; and it is a singular circumstance, that 140 years after the first emigration of her ancestors to America, this lady should become vice-queen of the country from which they fled, at the summit of a system which a more immediate ancestor had risked every thing to destroy; or, in the energetic and poetical language of bishop England, 'that in the land from which his father's father fled in fear, his daughter's daughter now reigns as queen.'" Mr. Carroll died Nov. 14, 1832. "During thirty years passed in public life, embracing the most eventful period of the history of the U. States, Mr. Carroll, as a politician, was quick to decide and prompt to execute. His measures were open and energetic, and he was more inclined to exceed than to fall short of the end which he proposed. As a speaker, he was concise and animated: the advantages of travel and society made him impressive and instructive. As a writer, he was remarkably dignified: his arrangement was regular; his style was full, without being diffuse, and, though highly argumentative, was prevented from being dull by the vein of polite learning which was visible throughout. In person, Mr. Carroll was slight, and rather below the middle size. His face was strongly marked; his eye quick and piercing; and his whole countenance expressive of energy and determination. His manners were easy, affable and graceful; and, in all the elegances and observances of polite society, few men were his superiors."

Carteret, John, earl of Granville, an eminent English statesman, born in 1690, was the eldest son of George lord Carteret, whose death put him in possession of that title before he was five years old. He was educated at Westminster school and Christ-church college, Oxford, where he highly distinguished himself by his classical attainments. He was introduced into the house of peers in 1711, and immediately distinguished himself by zeal for the Hanoverian succession, which acquired him the notice of George I, by whom he was raised successively to various posts of honor. In 1719, he was sent ambassador to Sweden, and mediated the peace between that country and Denmark. In 1721, he succeeded Craggs as secretary of state, and proved a most able support to the administration by his forcible and eloquent oratory in parliament. In 1723, he accompanied the king to Hanover, and on his return was appointed lord-lieutenant of Ireland, which kingdom was at that time in a state of great discontent, not a little increased by the famous Drapier's letters of Swift. The dean, who esteemed lord Carteret for his manners and learning, expostulated with him for his prosecution of the printer of those letters. The lord-lieutenant ingeniously replied by a quotation from Virgil: *Regni novitas me talia cogit moliri.* After an administration which, upon the whole, was not unpopular, he returned to England in 1726; and, on the accession of George II, in 1727, was again appointed to the viceroyalty of Ireland, where he conducted affairs, until 1730, with great success, conciliating parties, and producing much apparent harmony, by his abilities and social talents, in which he was much aided by the countenance and humor of Swift. On his return to England, however, he became a violent opponent to sir Robert Walpole, and, in 1741, made the famous motion for an address to remove him from the king's presence and councils, exerting all his great eloquence on the occasion. In 1742, when that dismissal was effected, he became secretary of state, and in that capacity supported measures very similar to those which he had censured in Walpole. In 1744, on the death of his mother, he succeeded to the titles of viscount Carteret and earl of Granville, and in a few weeks resigned his seals as secretary of state, unable to resist the patriotic party and the Pelhams, whom he had previously forsaken. It is unnecessary to follow him in the subsequent changes in a life of struggling and vacillating statesmanship. It is sufficient to remark, that, although obliged to yield occasionally to stronger interests, he never lost the favor of the house of Hanover; and at last died president of the council, in 1763, in the seventy-third year of his age. The natural talents and acquirements of this nobleman appear to have been eminently calculated for the sphere in which he moved. His genius was lofty and fertile, and his self-confidence equal to it; it having been said of him that he "never doubted." He was ambitious and fond of sway, but neither mercenary nor vindictive; and his own great literary attainments made him an encourager of learning in others. He was in particular the patron of doctor Taylor, so celebrated for his acquirements in the Greek language, as also of the still more famous doctor Bentley. In social life, he was pleasant, good-humored and frank. It will not add to this nobleman's character to state that he was a decided enemy to the diffusion of education, and that he deemed ignorance the best foundation of obedience.

Casimir Périer died at Paris, May 16, 1832.

Castelcicala died of cholera, 1832.

Caterpillars. (See *Moth.*)

Celery. (See *Parsley.*)

Ceos. (See *Zea.*)

Chagreen. (See *Shagreen.*)

Chain Snake. (See *Serpent.*)

Chalmers, Thomas, lately professor of moral philosophy in the university of St. Andrews, now professor of divinity in the university of Edinburgh, was born about the year 1770, in Scotland, and proceeded to the degree of D. D., in one of the universities of his native country. He officiated for many years as minister of Kilmany; but, having become famous for his oratory, he was invited to Edinburgh; and, his reputation still extending, he at length obtained the valuable ministry of St. John's, Glasgow. In 1823, during a brief visit to London, he preached repeatedly to immense congregations. His works consist of an Address to the Inhabitants of the Parish of Kilmany, on the Duty of giving an immediate Diligence to the Business of Christian Life; Scripture References; the Utility of Missions ascertained from Experience; an Inquiry into the Extent and Stability of National Revenues; the Influence of Bible Societies on the Temporal Necessities of the Poor; the Evidence and Authority of the Christian Revelation; a Series of Discourses on the Christian Revelation viewed in Connexion with Modern Astronomy; Sermons preached at the Tron Church, Glasgow; the Doctrine of Christian Charity applied to the Case of Religious Difference; the Two Great Instruments appointed for the Propagation of the Gospel; Speech delivered in the General Assembly respecting the Bill for augmenting the Stipends of the Clergy of Scotland; Thoughts on Universal Peace; Political Economy in Connexion with the Moral State and Prospects of Society (1832); and various tracts and other pieces, political and religious. Although many of his productions are highly honorable to the talents of doctor Chalmers, his reputation principally rests on his pulpit eloquence, which is remarkable for the power with which it appeals to the feelings, and convinces the judgment of his auditors.

Champollion the Younger died at Paris, in March, 1832.

Chandler, Thomas Bradbury, a distinguished clergyman and writer, was born at Woodstock, Connecticut. In 1745, he graduated at Yale college, and, having joined the Episcopalian church in 1748, went to England, and took orders. On his return, he fixed his residence at Elizabethtown, New Jersey, where the church of St. John was placed under his guidance. He was made a doctor of divinity by the university of Oxford, and enjoyed a high reputation for learning, ability and piety. He died July, 1790, in the sixty-fifth year of his age. He was for some time engaged in a controversy with the reverend doctor Chauncy, of Boston, in defence of the Episcopal church. His productions were principally polemical, besides several sermons, and a life of the reverend doctor Johnson, which he prepared for the press, but which was not published until fifteen years after his death, in consequence of the revolution.

Chapetones. (See *Creoles, and Mestizoes.*)

Charlock. (See *Radish.*)

Cheese; the curd of milk separated from the whey and pressed or hardened. The manufacture of cheese was one of the earliest inventions. We find mention made of it in the book of Job (x. 10), one of the oldest works extant. According to Diodorus, the invention of cheese was commonly attributed to Aristæus. (q. v.) The Romans were early acquainted with this article of food. According to Cæsar, it was much used by the ancient Germans; and Strabo mentions that the Britons were very skilful in making cheese. The Alpine cheeses, made of the milk of the cow and the sheep, were celebrated as early as the second century. The Arabians put the milk, as soon as coagulated, into osier or palm-leaf baskets, press, and eat it fresh. Such was, probably, the cheese spoken of in 1 Samuel xvii, 18, sent by Jesse to Saul. When prepared from rich milk, and well made, it is very nutritious in small quantities; but mostly indigestible when hard and ill prepared, especially to weak stomachs. If any vegetable or mineral acid be mixed with milk, the cheese separates, and, if assisted by heat, coagulates into a mass. The quantity of cheese is less when a mineral acid is used. Neutral salts, and likewise all earthy and metallic salts, separate the cheese from the whey. Sugar and gum-arabic produce the same effect. Caustic alkalies will dissolve the curd by the assistance of a boiling heat, and acids occasion a precipitation again. Vegetable acids have very little solvent power upon curd. This accounts for a greater quantity of curd being obtained when a vegetable acid is used. But what answers best is rennet, which is made by macerating in water a piece of the last stomach of a calf, salted and dried for this purpose.—There is an immense variety of cheeses, the qualities of which depend principally on the richness and flavor of the milk of which they are made, and partly on the way in which they are prepared. England is particularly celebrated for the abundance and excellence of its cheese. Cheshire and Gloucestershire are, in this respect, two of its most famous counties. The cheese produced in the former has been estimated at 11,500 tons a year. There are two kinds of Gloucester cheese, double and single: the first is made of the milk and cream, the latter, of the milk deprived of about half the cream. They are of various sizes, from twenty to seventy, and even eighty pounds; but they generally run from fifty to sixty pounds. A great deal of cheese is also made in that part of Shropshire which borders upon Cheshire, and in North Wiltshire. The former goes under the name of *Cheshire* cheese; the latter was, till lately, called *Gloucester* cheese; now it receives its appellation from the county where it is made. A strong cheese, somewhat resembling Parmesan, is made at Chedder, in Somersetshire. The celebrated rich cheese called *Stilton*, is made in Leicestershire, principally in the villages round Melton Mowbray. It is not reckoned sufficiently mellow for cutting unless it be two years old, and is not salable unless it be decayed, blue and moist. A rich cheese is also made at Leigh in Lancashire. The other cheeses made in England, which have acquired a peculiar name, either from the quantity made, or from the quality, are the Derbyshire, Cottenham and Southam cheeses. The two last are new-milk cheeses, of a peculiarly fine flavor: the places where they are made are in Cambridgeshire. Bath and York are remarkable for their cream cheeses. The county of Warwick, and Banbury in Oxfordshire, are also remarkable for cheeses; the former for the quantity made in it, about 20,000 tons being annually sent to London, besides a very large supply to Birmingham. Banbury cheese is distinguished for its richness. Scotland is not celebrated for its cheese: the best is called *Dunlop* cheese, from a parish in Ayrshire, where it was originally manufactured. Dunlop cheeses generally weigh from twenty to sixty pounds each, and are, in all respects, similar to those of Derbyshire, except that the latter are smaller. Turmeric, marigolds, hawthorn buds, &c., were formerly used to heighten and improve the color of cheese; but arnotto (see the word) is decidedly the best ingredient that can be employed for that purpose, and is at present used in Cheshire and Gloucestershire, to the exclusion of every thing else. An ounce of genuine arnotto will color a hundred weight of cheese. Large quantities of very good cheese are produced in Holland. In the manufacture of Gouda cheese, which is reckoned the best made in Holland, muriatic acid is used in curdling the milk, instead of rennet. This renders it pungent, and preserves it from mites. Parmesan cheese, so called from Parma, in Italy, where it is manufactured, is merely a skim-milk cheese, which owes its rich flavor to the fine herbage of the meadows along the Po, where the cows feed. The best Parmesan cheese is kept for three or four years; and none is ever carried to market till it be at least six months old. Swiss cheese, particularly that denominated *Gruyere*, from the bailiwick of that name, in the canton of Friburg, is very celebrated. Gruyere cheeses are made of skimmed, or partially skimmed milk, and are flavored with herbs. They generally weigh from forty to sixty pounds each, and are packed for exportation in casks containing ten cheeses each.

Chicken Snake. (See *Serpent.*)

Child. (See *Parent.*)

Chilminar. (See *Persepolis.*)

Chimpanzee, or Orang-Otang. (See *Ape.*)

Chinese Computation of Time. (See *Epoch.*)

Cholera, Cholera Morbus, Cholera Asphyxia, Cholera Maligna, Cholera Epidemica, Epidemic Cholera Fever. All these names have been applied, by different observers, to a formidable disease, which is now, for the first time, known to be extensively epidemic in the world, and whose origin and ravages will be reckoned among the most distinguishing events of the present century.* Long prior to the appearance of the present epidemic in the Delta of the Ganges, in 1817, and its subsequent diffusion over so large a portion of the globe, extensive and destructive visitations of cholera had been noticed by various writers. One of these, we learn, occurred in Europe at the close of the seventeenth century; but most of them originated in the East, and limited their devastations to that quarter of the world. The indefatigable Mr. Scot has quoted, from the Madras Courier of 1819, a letter, which suggests the opinion that a description—though certainly a very obscure one—of a disease resembling that which now prevails, is to be found in a Hindoo work of great antiquity, and cites instances of the epidemic prevalence and great fatality of cholera, from the time of Bontius, in 1629, to the present century; but the description of these epidemic visitations has not always reached us in so detailed a form as to enable us to judge correctly of their identity with what has been recently observed: enough, however, may be gleaned to prevent our denying this identity in some instances; indeed, it is impossible not to be struck with the resemblance which certain of the more accurately reported of these examples—especially one which occurred at Ganjam in 1781—bear to that now existing. But this much seems certain, that, however cases in previous visitations may have resembled in character those of the prevailing disease, no recorded epidemic of cholera has equalled this in the wideness of its diffusion and the amount of its ravages, or has preserved its character and intensity so little influenced by climate and temperature. The question of the identity of the disease which now prevails in Great Britain, on the continent of Europe, and in North America, and that which ravaged Hindoostan, having been settled in the affirmative, at least as regards certain of their most important practical points, by the various respectable physicians who have witnessed both diseases, we may assume that much of the valuable information transmitted to us from India, respecting the nature and treatment of the malady which raged there, is applicable to that now committing its ravages in Europe.

I. *Symptoms of Cholera in India.*—The disease generally makes its attack in the night, or towards morning, with vomiting so excessive that the whole contents of the stomach appear to be discharged; and, nearly at the same time, the bowels are copiously emptied, as though all the solid matters in the intestinal canal were evacuated. In some cases a watery purging precedes the vomiting by some hours; but they more frequently occur simultaneously. After the first copious discharge, the patient experiences a distressing feeling of exhaustion and faintness, with ringing in the ears and giddiness. The subsequent discharges from the stomach, and those from the bowels, do not differ from each other in appearance, excepting as the matters ejected from the stomach may be tinged by medicines or other ingesta: they are generally watery, colorless and inodorous, and are compared in their appearance to barley-broth, or more frequently to rice-water. Sometimes they are like milk, occasionally yellowish, greenish, like muddy water or yeast; but the *conjee-stools*, as they are emphatically termed, which consist of albuminous flakes floating in serum, or discharges of pure serum, are of the most frequent occurrence. The dejections sometimes take place without effort or uneasiness, but occasionally very forcibly, with simultaneous vomiting, spasm, and sinking of the pulse. This violent action of the alimentary canal is not of long continuance, the powers of the system being unable to support it: hence the vomiting and purging generally cease some hours before death; but, in some cases, a discharge of serum takes place from the rectum, on any movement of the body, till the fatal close. In most cases, some time after the commencement of this affection of the intestinal tube, but, in others, previously to it, spasmodic contractions of the muscles of the fingers and toes are felt; and these affections gradually extend along the limbs to the trunk. The spasms are imperfectly clonic or convulsive, with infrequent relaxations, are attended with great pain, and leave, for some days afterwards, a degree of stiffness in the affected muscles. The pulse is from the first small, weak and accelerated; and, after a certain interval, but especially on the accession of spasms or severe vomiting, it sinks suddenly, so as to be speedily lost in the external parts. The length of time during which a patient will live in this pulseless state is remarkable. In a case related by doctor Kellett, the pulse was gone within three hours from the attack; yet the man lived twenty-two hours in that state. On the cessation of spasm and vomiting, and sometimes apparently from the exhibition of remedies, the pulse will return in the extremities for a short time, and again cease. The skin is cold from the commencement of the disease, and, as it advances, becomes gradually colder, and is covered either with a profuse sweat or a clammy moisture. The state of its circulation, and its insensibility, are sometimes strongly denoted by the following circumstances: leeches will not draw blood from it; blisters and other vesicatories will not act; and even the mineral acids and boiling water produce no effect; and some patients are not even sensible of their application. In Europeans, the color of the surface is often livid; the lips and nails present a blue tint; and the skin of the feet and hands becomes corrugated, and exhibits a sodden appearance, as if from long immersion in hot water. With these symptoms coëxist violent pain of the intestines, with a sensation of writhing and twisting there; heartburn, which the sufferer compares to a fire consuming his entrails; excessive thirst; anxiety, with inexpressible uneasiness about the præcordia; hiccough; jactitation; and, notwithstanding the actual coldness of the surface, and even of internal parts which are accessible to the touch (the tongue for instance), a sense of heat which impels the patient incessantly to throw off the bed-clothes. The breathing is much affected, being performed either more slowly than usual (sometimes, for instance, in the advanced stage, only at the rate of seven respirations in a minute), or the inspirations are short and sudden, with violent pain from spasm of the diaphragm; the voice being feeble, hollow, hoarse and interrupted. The eyes are sunk in their orbits; the corneæ flaccid, the conjunctivæ frequently suffused with blood; the features of the face collapsed; and the whole countenance wears a cadaverous aspect. The secretions (those of the skin and intestines excepted) are generally suspended. The functions of the mind are undisturbed almost to the very last moment of existence. The approach of recovery is denoted by the rising of the pulse, the return of heat to the surface, inclination to natural sleep, diminution or cessation of vomiting, purging, and spasms, and, after an interval, the reappearance of bilious stools, urine and saliva.* Regarding the above as a picture of the general type of a disease rather variable in character, we shall proceed to relate the more striking deviations from the ordinary form which were observed in India. Instead of the exceedingly sunk state, there was a marked excitement, with a hot and dry skin, and a pulse of considerable force, in several instances throughout great part of the course of the disease.† This, in some cases, arose from the early exhibition of stimulants; but in others it appeared to be an essential part of the disorder. These cases yielded most certainly and readily to treatment; and hence many of them having been subdued without the occurrence of sinking or debility, it was a matter of doubt whether this description of disorder really belonged to the epidemic; but that it did so was placed beyond all question by some of the more protracted cases degenerating into the ordinary low form. The most fatal variety of the disease was denoted by the slightness of the commotion in the system: there was no vomiting; hardly any purging; perhaps there were only one or two stools, with no perceptible spasm; no pain of any kind; a mortal coldness, with arrest of the circulation coming on from the beginning, and the patient dying without a struggle within three or four hours. Several instances were heard of, at Hoobly and other places, of natives being struck with the disease whilst walking in the open air, and who, having fallen down, retched a little, complained of vertigo, deafness and blindness, and expired in a few minutes. Mr. Scot informs us that this most deadly form of the disease frequently manifested itself in local epidemic visitations, which were often observed in India, all the cases occurring at the same time in a given district partaking of the same peculiarity of character. The collapsed form of disease, first described, is that which has been most frequently observed. In fatal cases, its duration varies from four to eight hours; whilst in those which terminate favorably (a result often apparently due to early medical assistance), the patient may be restored to perfect convalescence in a period ranging from twenty-four to forty-eight hours. But, in many cases, considerable disturbance of the system intervenes between the period of collapse and restoration to health; or this disturbance may itself cause death. The Indian reporters mention two forms of this disorder. In the one, with some excitement in the system, the bowels continue to discharge, for many days, first brown and watery, then dark, black and pitchy stools, sometimes with blood, and with peculiar pains in the bowels, particularly in the rectum. The other, a distinct febrile form, we shall describe in the language of the Bengal Report:—"The fever, which almost invariably attended this second stage of the disease (in Europeans), partook much of the nature of the common bilious attacks of these latitudes. There was a hot, dry skin, a foul, deeply-furred tongue, parched mouth, thirst, sick stomach, restlessness, watchfulness, and quick, variable pulse, sometimes with delirium and stupor, and other marked affections of the brain. Generally, when the disorder proved fatal in this stage, the tongue, from being cream-colored, became brown, and sometimes black, hard, and more deeply furred; the teeth and lips were covered with sordes; the state of the skin varied, chills alternating with heats; the pulse became extremely quick, weak and tremulous; hiccough, catching of the breath, great restlessness and deep moaning succeeded; and the patient soon sunk, incoherent and insensible, under the debilitating effects of low nervous fever, and frequent, dark, tarry, alvine discharges." A consecutive fever, similar to this, we learn from doctors Russell and Barry, is of more frequent occurrence in Russia than in India. The following description of it we owe to these gentlemen: "After the blue, cold period has lasted from twelve to twenty-four, seldom to forty-eight hours or upwards, the pulse and external heat begin gradually to return; headache is complained of, with noise in the ears; the tongue becomes more loaded, redder at the tip and edges, and also drier. High-colored urine is passed with pain and in small quantities; the pupil is often dilated; soreness is felt on pressure over the liver, stomach and belly; bleeding by the lancet or leeches is required. Ice to the head gives great relief. In short, the patient is now laboring under a continued fever, not to be distinguished from ordinary fever. A profuse critical perspiration may come on from the second or third day, and leave the sufferer convalescent; but much more frequently the quickness of pulse and heat of skin continue; the tongue becomes brown and parched; the eyes are suffused and drowsy; there is a dull flush, with stupor and heaviness, about the countenance, much resembling typhus; dark sordes collect about the lips and teeth; sometimes the patient is pale, squalid, and low, with the pulse and heat below natural; but, with the typhus stupor, delirium supervenes, and death takes place from the fourth to the eighth day, or even later, in the very individual, too, whom the most assiduous attention had barely saved in the first or cold stage. To give a notion of the importance and danger of cholera fever, a most intelligent physician, doctor Reimer, of the merchant hospital, informs us, that of twenty cases treated under his own eye, who fell victims to the disease, seven died in the cold stage, and thirteen in the consecutive fever."* The same gentlemen state, as the result of their observations, that the following are the points of difference between the European epidemic and that of India:—"First, the evacuations, both upwards and downwards, seem to have been much more profuse and ungovernable in the Indian than in the present cholera, though the characters of the evacuations are precisely the same. Secondly, restoration to health from the cold stage, without passing through consecutive fever of any kind, was by far more frequent in India than here (St. Petersburg); nor did the consecutive fever there assume a typhoid type.† Thirdly, the proportion of deaths in the cold stage, compared with those in the hot, was far greater in India, according to doctor Russell's experience, than here. Fourthly, the number of medical men and hospital attendants attacked with cholera during the present epidemic, in proportion to the whole employed, and to other classes of society, has been beyond all comparison greater here than in India under similar circumstances." Doctor Keir, of Moscow, gives the following description of the consecutive or secondary morbid state:—"A second ordeal now begins, sometimes as severe, and frequently not less fatal, though more slowly so, than the first: this is probably the effect of the morbid changes which have been induced during the first period of the disease. The appearance of the complaint is now entirely changed, insomuch that one who had not seen the patient during the first period, or been told of the symptoms, could not possibly know that he was suffering from the epidemic. I have observed the disease in this, its second period, to assume four forms: the first, an inflammatory, or rather sub-inflammatory state of the stomach and bowels, most frequently the latter, sometimes conjoined; the second, inflammatory irritation of the lungs, with pain of the chest, cough, viscid expectoration and fever, appearing as a critical metastasis of the disease; the third, bilious or bilio-nervous fever, with suppuration of the parotid glands—in one case, with axillary suppurating bubo, towards the end of the fever, an inflammatory irritation of the lungs took place, ending in vomica; and the fourth, a congestive sub-inflammatory state of the brain and spinal chord. This last, as was natural to expect from the nature and seat of the affection, proved by far the most dangerous and most frequently fatal form of the second period: it appeared generally to supervene after the purging, vomiting and cramps had been relieved, and the external heat in some degree restored; the patient complained of pain in the back, between the shoulder-blades, or in some other part of the spine, sometimes along its whole tract; he appeared sleepy to such a degree that at first I was disposed to attribute this state, in part at least, to the effects of the opium given in the first period. But I was soon convinced that the cause of this symptom, and of another strongly characteristic of this form of the disease, namely, the filling of the vessels of the sclerotica with red blood, was a congestive sub-inflammatory state of the brain and spinal chord. This striking symptom at first began to show itself in the inferior part of the globe of the eyes; it gradually increased, and, little by little, reached the upper part, while the eyes turned upwards, exposing the lower part gorged with blood. This state of the patient generally ended in a complete coma, and proved fatal a few hours afterwards." Besides the various and appalling symptoms which indicate general derangement of the action of the solids, there are appearances in the blood drawn during the collapsed stage, showing that the fluids feel the influence of this formidable disease. These appearances are very uniformly expressed by the terms *dark*, *black*, or *tarry*, in regard to color, and by *thick*, *ropy*, *sirupy*, or *semi-coagulated*, in respect to consistence. This change in the condition of the circulating fluid is fully proved to be in the ratio of the duration of the disease; the blood at the commencement seeming to be nearly or altogether natural, and more or less rapidly assuming a morbid state as the malady advances. This condition was less conspicuous in cases of cholera ushered in by symptoms of excitement, than where the collapsed state of the system had occurred early; and in certain rare cases it was not observable at all, and the blood flowed readily from the vein; but the reverse was the fact, both with respect to its condition and the manner of its flowing from the arm, in an immense majority of instances. In general, after a certain quantity of dark, thick blood had been drawn, its color became lighter, its consistence less thick, and the circulation revived, such appearances always affording grounds for a proportionably favorable prognosis. There is some discrepancy in the accounts transmitted to us of the mode in which this diseased blood coagulates. In some instances, we learn, the

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* The following article is taken from the Cyclopædia of Practical Medicine (London, 1832), with the exception of the part relating to the appearance of the disorder in the U. States, which was furnished by a medical gentleman of Boston.

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* Scot's Reports on the Epidemic Cholera; Anderson on Cholera (E M. and S. Journal, vol. xv, p. 324); Christie on Cholera and the Pathology of Mucous Membranes; Annesley's Sketch of the Diseases of India, &c.

† Madras Reports, p. 25.

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* Report of doctors Russell and Barry to C. C. Greville, esquire, published, among other papers, by authority of his majesty's most honorable privy council.

† If we compare the symptoms attributed to this consecutive fever by doctors Russell and Barry, with those quoted from the Bengal Reports, the difference between this stage of the respective epidemics does not appear very striking: the epithet *typhoid* seems almost equally applicable to both. Varieties were observed in the disease as it prevailed in the different Indian presidencies,

and likewise between that which existed in Hindoostan and Ceylon, perhaps as considerable as those now observed by these intelligent physicians. In regard to what is stated in the extract referred to, relative to the greater frequency at Petersburg of the secondary "typhoid," or, as more commonly designated in India, "low biliary" symptoms, we confess that we observe a discrepancy when we read a subsequent part of the same Report, in which doctors Russell and Barry state, "Convalescence from cholera has been rapid and perfect here, as is proved by the following fact:—The minister of the interior had given orders that all convalescents, civil as well as military, at the general hospital, should be detained fourteen days. We inspected about two hundred of these *détenus* some days back, with sir J. Wylie, and found them in excellent health, without a single morbid sequela."

coagulation is rapid, whilst in others it is slow and imperfect. Reporters are unanimous in declaring it deficient in serum, and destitute of the buffy coat. The latter is occasionally observed in cases attended with reaction, in which the blood is not black and thick.* The discharges from patients suffering under this disease were subjected to experiment by doctor Christie. The secretion consists of two substances, the one a transparent serous fluid, the other an opaque, white coagulum; the former perfectly soluble in cold water, the latter quite insoluble. These matters being submitted to the action of rëagents, the fluid part was found to be pure serum, and the coagulated portion fibrin. The secretion, therefore, as the author remarks, has a composition similar to that of the blood deprived of its coloring matter; but the serum is in much larger proportion to the fibrin.

II. *Character of the Epidemic as it appeared in Sunderland in* 1831. Thus far (says the English writer) our account of this formidable malady has been derived from the very valuable mass of information with which we have been favored by our medical brethren in India, and the many intelligent men who have witnessed its ravages on the continent of Europe. Circumstances having brought it under our own observation, we shall endeavor to convey succinctly to the reader the results of our experience, prefaced by a few reflections on the character and designation of the disease which this experience has suggested to us. Were we to attempt a definition of epidemic cholera, the following, according to our experience, would comprise its distinctive symptoms:—After watery diarrhœa, or other generally slight indisposition, vomiting and purging of a white or colorless fluid, violent cramps, great prostration and collapse,† the last occurring simultaneously with the vomiting and cramps, or shortly after them. Should the patient survive the last train of symptoms, a state of excitement and fever supervenes. We can convey a correct idea of the disease only by dividing it into three stages, the *incipient*, the *cold* or *choleric*, and the *febrile:* the division accords with the character of the disease.

1. *Symptoms of the Incipient Stage.* In an immense majority of instances, diarrhœa has been the prominent symptom of this stage. Languor and lassitude, and occasionally nausea and vertigo, coexisted with the disorder of the bowels, and sometimes certain of these symptoms may have appeared without *it*; but its occurrence has been so common, that we have treated few cases in which it had not preceded the more formidable symptoms. On examining the discharges, if we have an opportunity of doing so shortly after the occurrence of the diarrhœa, they will be observed to be fœcal and bilious; but we shall find that they subsequently bear the serous character of those which occur after the choleric stage is fully formed: they are passed copiously and without much griping; the feeling of debility which attends them is great, and this diarrhœa is so exhausting, that we have met with patients, especially those advanced in life, in whom a considerable degree of collapse had occurred, with a feeble pulse, scarcely exceeding fifty, before the accession of vomiting and cramps. The natural tendency of this purging is, we believe, to pass into the choleric stage; but the transition has frequently occurred shortly after some dietetic error, either as to quantity or quality of food, or after exposure to cold. The commencement of the purging has sometimes preceded by several days the accession of the choleric stage, and occasionally only by eight or ten hours; but forty-eight hours has been its mean duration, calculated from a great number of instances. We have dwelt the more on this incipient stage, from a conviction, the result of considerable observation of the disease, that subsequent symptoms might often be prevented, and life preserved, by early and proper treatment of the diarrhœa.

2. *Symptoms of the Cold or Choleric Stage.* Our description will be more intelligible if we divide into two periods this very important stage, which has, in truth, given its name to the disease, and, by its fearful symptoms, has engrossed such general attention, that the facts of its being but part of a series of changes, has been too often lost sight of. —*First Period.* The time of invasion has been, as in India, in a great majority of

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* Madras Report, p. 30, &c.

† By *collapse*, in this definition, is meant the feebleness or almost the arrest of the circulation; the death-like appearance, the coldness, shrinking, and occasional blueness of the surface, which may in other diseases be observed after they have existed some time, and as the powers of life are passing away; but which occur, in what we shall call the cold or choleric stage of the epidemic, in a short time after its commencement, as though they formed an essential part of it. The degree and early accession of this collapse, and the white discharge, are the only distinctive marks that we are aware of between this stage of the epidemic and ordinary cholera.

instances, from two to four o'clock in the morning. The patient is attacked with uneasiness of the stomach, occasionally amounting to pain, to which speedily succeeds vomiting of the characteristic fluid so frequently described, and, if diarrhœa have preceded, which, in almost all the cases that have fallen under our observation, has been the case, a purging of the same fluid, the fœcal contents of the canal having been previously expelled. The vomiting is rarely full and effectual, consisting rather of apparently unsatisfactory retchings than of a full discharge of the contents of the stomach; but sometimes these contents are expelled forcibly, as if squirted from a large syringe. The discharges from the bowels are occasionally scanty, but much more frequently they take place copiously and forcibly. Simultaneously with the vomiting, or not unfrequently before this symptom has occurred, cramps take place; and the agony which attends them constitutes great part of the sufferings of the patient, who incessantly entreats that friction may be applied to the parts they affect. However soon our visit may be made, the pulse will generally be found to be feeble and frequent; the skin, in point of heat, below the healthy standard; the countenance shrunk, and, if not livid, pallid; and the respiration hurried, if not checked, as it frequently is, by spasm of the diaphragm and intercostal muscles. The circulation sinks remarkably, and sometimes appears momentarily to cease, on every accession of severe vomiting or spasm.—*Second Period.* The mean duration of the preceding period varies from about eight to twelve hours; the vomiting and spasms then either totally subside or recur at much longer intervals, and the patient sinks into a state of extreme collapse. The pulse at the wrist is scarcely or not at all perceptible; the surface is universally moist and cold, excepting as heat is imparted from without, for the instant that the hands or other parts are exposed, they become of an icy coldness; blueness, if it exist at all,—but it is by no means an uniform symptom,—is now conspicuous on the face and hands, which last have the shrunk and sodden appearance so generally described; the tongue is moist, and, if not actually cold, at least cooler than natural; and the voice is of that mingled huskiness and feebleness which strikes the ear so peculiarly. In this condition there is little suffering, excepting from the sense of weight and oppression at the præcordia, of which the patient complains much; for even should spasms occur, they are now too feeble to excite much pain; the respiration is slow; the conjunctivæ, especially in their inferior hemisphere, are frequently injected with dark-colored blood; and the insensibility of the stomach is so great, that the most powerful stimulants may be given and retained without the organ being apparently more sensible of their presence than if it were a lifeless pouch. The urine is suspended throughout the whole course of a choleric stage so intense as we have described.

3. *Symptoms of the Febrile Stage.* The preceding stage, in most cases, makes a very gradual transition into the present one. After the patient has remained in the collapsed state, probably for a considerably longer time than the medical attendant expected, some degree of warmth will be found returning to the surface, which, for a variable period, perhaps for a couple of days, has been almost of icy coldness; and the pulse is proportionably developed, being very perceptible at the wrist, generally about eighty, and soft; the vessels of the conjunctiva gradually become distended with blood; or if those of the inferior hemisphere have been so during the stage of collapse, the distension now diffuses itself over the whole membrane; the patient, who, on his attention being roused, is perfectly sensible, complains of severe pain in the head, of a sense of giddiness, and that the light distresses his eyes. The tongue in this early stage is clean and moist; the bowels are readily acted upon by medicine, and the discharges are feculent, and, though somewhat clayey, contain a proportion of bile; but the urinary secretion is sometimes either not restored, or is considerably deficient for a day or two after the establishment of fever. In the progress of the fever, the tongue becomes black, and sordes accumulate about the teeth; the eyes become more and more injected; the intellect more and more torpid, though still the patient can be roused to answer questions, and even may make one or two sensible remarks on his condition; but the instant the conversation ceases, the eyes are turned up in the orbit, exposing through the half-closed eye-lids the red sclerotica, and the patient is in a state of profound stupor: the urinary secretion is now established, and the urine, which at first was dark-colored and cloudy, is now limpid and pale; the alvine discharges are darker colored than at first; and throughout the disease there is

a deficiency of vascular action and of temperature, which we have not observed to the same extent in typhus or any other fever. However flushed the countenance may appear,—and it is often very considerably so,—the temperature of the surface is below the healthy standard; and we have not often found the pulse above ninety. *Typhoid* is not an inappropriate designation of the condition we have endeavored to describe; but we think that an individual who had once watched the progress of such a case, would run no risk of confounding it, on future occasions, with typhus;—the deficiency of vascular and calorific power; the peculiar vascularity of the eye; the absence of subsultus and muttering delirium (for though delirium occasionally occurs during night, the condition of the intellect is throughout much more one of torpor than of irregularity), would be the marks by which he would discriminate the two affections. The duration of such a febrile stage as we have described, is from a week to ten days. Its termination has been, in a considerable majority of instances which have fallen under our observation, fatal. The brain has appeared to us to be the organ mainly affected; and by this view our treatment has been chiefly guided, though, at the same time, the condition of the intestinal canal has not been neglected. In another form, and one which supervenes on a minor degree of collapse than the preceding, the symptoms do not differ from those described above, excepting that there are indications of greater excitement,—more warmth of surface, and more force and frequency of pulse. Depletion could be more freely practised, and it was altogether a more tractable form of disease. The mildest and most tractable type of the febrile stage was denoted by symptoms of general but moderate excitement, with epigastric pain on pressure, headache and giddiness; the tongue being at the same time either clean, with a disposition to become dry and glazed, or slightly white and furred; the skin warm; the pulse free and forcible; the urine highly colored, and the thirst considerable. In such a case there is little or no confusion of thought or delirium, and the eyes are not injected. We need scarcely remark that examples of this mild and tractable type of the febrile stage occurred after a choleric stage, in which the symptoms of collapse had been inconsiderable, in which the urinary secretion had not been suspended, or which had not always been attended with vomiting—a symptom occasionally wanting in slight cases. The writer met with but one example of considerable affection of the thoracic organs; and this occurred in a case, in point of general character, not unlike the form last described, though somewhat more collapsed. The affection was bronchial, and was relieved by a copious expectoration of very dark-colored sputa, —the patient recovering. In the preceding sketch of the febrile stage, it will be understood that, as in the case of the choleric stage, we have not attempted to depict all the various shades of intensity in which the disease manifested itself. The extremes are given: to have essayed to describe all the intermediate degrees would have swelled the article beyond reasonable limits, and would have proved a burden to the memory of the reader.

4. *Prognosis.* The danger of the disease is in all cases, we believe, to be estimated from the degree of collapse attending the cold or choleric stage. In India, it was remarked that the cases in which the spasms and vomiting were the most violent were by no means fraught with the most peril; and what we have seen of the disease enables us to bear testimony to the accuracy of the remark; for when we have heard the attendants exulting in the cessation of the spasms, and the facility with which the stomach retained medicine or food, and have felt, at the same time, the pulseless wrist and the cold and clammy hand, we have seen, in these apparently favorable omens, only the natural progress of the disease from a bad condition to one still worse. Whether we are to dread a fatal result in the cold or the excited stage, the intensity and duration of the collapse in the former of these stages are the measure of the danger; for if the patient die in this stage, he dies of collapse; and if he survive it, and pass into the state of fever, the character of this fever is malignant and dangerous in proportion to the same collapse.

5. *Diagnosis.* From ordinary cholera the cold stage is to be distinguished, as it appears to us, by the peculiar character of the discharges, which has been sufficiently dwelt upon, and by the degree of collapse and its early occurrence. Cases have been adverted to, which, at least in the choleric stage, could not be discriminated from ordinary cholera, excepting, perhaps, from their taking place at a season of the year when ordinary cholera is never observed; but it may be remarked that no one would infer the existence of

the epidemic from such cases, though he might be disposed to acknowledge that they belonged to it, if cases less equivocal were simultaneously prevalent, and especially if they originated under the circumstances mentioned in the preceding pages. Notice has been taken of sporadic cases which have occurred in several parts of the kingdom during the last year, and which have been reported in various publications. We have already stated our opinion as to the perfect identity of the group of symptoms in certain of these cases and those which characterize the choleric stage of the epidemic. These cases have generally been fatal as cases of cholera, and, probably on this account, have attracted attention and been reported; and hence what we should consider the *experimentum crucis* by which their essential alliance to the epidemic, as it has manifested itself in this country, or difference from it, can alone be proved,—the intervention, or otherwise, of fever between the cold stage and recovery,—is necessarily wanting. We have been favored, by a gentleman of high character and attainments,* with a report of two cases, regarded, at the time they occurred, as aggravated cases of the ordinary disease: both took place in the interior, under circumstances in which there was not the slightest ground to suspect contagion, and previously to there being any suspicion of the existence of the epidemic in this country. In one, the symptoms bore, unquestionably, a considerable resemblance to the choleric stage of the epidemic; but no fever supervened. The symptoms of the other shall be given in the words of the writer:—"The total, or nearly total suspension of the secretion by the kidneys; the watery vomiting and stools; the severity of the spasms; the shrunk and corrugated state of the skin on the hands and feet, and the blueness of his nails, persuade me that his disease was of the spasmodic type. In him, moreover, a slow fever succeeded the original symptoms, and long retarded his recovery." We need not remark that we would not attempt to discriminate between such a case as this and examples of the epidemic, believing their character to be identical. This case occurred in the beginning of July, 1831. There is a certain form of the febrile stage,—that which supervenes on a choleric stage, attended with extreme collapse,—which the deficiency of the temperature and the circulation, the congested state of the conjunctiva from the very commencement of the fever, and the peculiar torpor of the intellect, would enable, as it appears to us, the observer to discriminate from any fever which we are in the habit of witnessing in this country, provided he saw the patient early and watched him throughout; but in the majority of instances, the diagnosis can only be correctly drawn by coupling the preceding history of the case with the existence of fever and with its character.

6. *Appearances presented on Dissection.* The external appearance of body closely resembles that which has been noticed during life: the solids are shrunk, the surface is livid, the skin of the hands and feet is corrugated, the nails are blue, and the fingers often rigidly contracted. There is no evidence of any unwonted tendency to putrefaction, nor any characteristic fœtor from the abdominal cavity. In the *head* are found marks of congestion, and even occasionally of extravasation. Such appearances were not of uniform occurrence in the dissections performed in Hindoostan; but they were found very constantly in those made by doctor Davy, in Ceylon; and doctor Keir, of Moscow, discovered in the Russian disease the blood-vessels of the brain and its membranes more or less turgid with blood, particularly towards the base, with a fluid effused into its convolutions, and more or less of serum in the lateral ventricles. In the *thorax*, the pleura and pericardium are found, as the serous membranes generally are in this disease, perfectly healthy, with the exception, occasionally, of an unusual dryness. The lungs are sometimes in a natural state, but more frequently gorged with dark-colored blood, so as to resemble liver or spleen; or they have been found collapsed on each side of the spine, leaving the thorax nearly empty. This latter appearance doctor Pollock, of the fifty-third regiment, explained by supposing gas to be extricated within the cavity of the pleura; but the thorax having been opened in such cases under water, and no air having been found, Mr. Scot is disposed to ascribe it to a contractile power exerted by the viscus, sufficient to overcome the atmospheric pressure. Both sides of the heart are in general distended with dark blood, and the bronchi are frequently filled with mucus. In the *abdomen*, the vessels of the liver are often much congested, and pour forth blood copiously when incisions are made into the organ; but this congestion is not uniformly found; the gall-bladder is turgid

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* Doctor Fenwick, of Durham.

with black bile, and its ducts are sometimes constricted and impermeable, though occasionally in an opposite state. The peritoneum is often quite healthy, but the portion investing the alimentary canal has frequently an inflamed appearance from the exceedingly loaded state of its blood-vessels. This congestion is sometimes so great as to give the appearance of gangrene; but by drawing the finger over the surface, innumerable small veins may be found running in every direction, as in a preparation nicely injected, and the texture is found to be resisting and firm. This portion of the peritoneum, however, occasionally bears marks of actual inflammation, especially if the patient has lingered long before death. It then presents a thickened appearance externally, and its color varies from a pale vermilion, through all the deeper shades, to a dark purplish hue; the former being chiefly remarkable on the surface of the duodenum and jejunum, the latter on the ileum, where it terminates in the cæcum. At other times, the whole alimentary tube, instead of this congested state, presents a blanched appearance both internally and externally. The omentum is sometimes healthy; at others, it presents the same appearance of extreme vascularity as the peritoneal surface of the alimentary canal. The following appearances are discovered on laying open the stomach and intestinal tube. A white, opaque, and viscid substance is found adhering to the surface of some portions of the mucous membrane; and in many cases it is so abundant in the intestines as completely to fill parts of them of a greater or less extent. The stomach and portions of the intestine are filled with a transparent or turbid serous fluid, and frequently the viscid matter mentioned above is found intimately mixed with the serous fluid, or floating in it in the form of flakes. The mucous membrane, except when inflamed, which it not unfrequently is, has an unnatural whiteness, is often soft and pulpy, and in general—especially in the stomach and small intestines—can be easily detached by scraping, in the form of a thick pulp, from the subjacent coat. These appearances are sometimes more or less partial; but some of them are generally found throughout the whole extent of the tube. They extend, in some cases, to the mucous membrane of the bladder and ureters, and have been found, in two or three instances, in that lining the bronchi. In one case only in India was the state of the spinal marrow examined; and in that, strong indications of inflammation were detected in its sheath: the case, however, was in some degree a mixed one. But doctor Keir found, at Moscow, the blood-vessels of the vertebral column and spinal chord more or less loaded with blood, which was sometimes effused between its arachnoid and dura mater; partial softening of the substance of the spinal chord was sometimes met with, and marks of inflammatory congestion in the larger nerves were detected.* The dissections performed in Sunderland have generally furnished results corresponding with those obtained elsewhere. In the *head*, venous congestion of the brain and its membranes has been the most uniform and prominent appearance. Serum has been found in the ventricles of the brain and at its base; but in many cases this has been in small quantity, not exceeding that frequently observed after diseases in which no affection of the encephalon was supposed to exist. In some cases, especially those in which death took place in a protracted stage, but occasionally in a rapid disease, fibrinous depositions existed between the membranes. In the *thorax*, the lungs have uniformly been found more or less gorged with blood, though in many cases the engorgement was in the posterior part, and probably resulted from position. These organs were generally crepitating, and free from structural change. Softness or flabbiness of the heart has been noticed in several instances, and both its cavities, and the venæ cavæ and coronary vein, have been distended with dark-colored blood. In the *abdomen*, the liver has been found gorged; but occasionally its condition was natural. The gall-bladder was generally distended, and the ducts were constricted, so that the viscus could not be emptied by pressure; but in some cases they were pervious. The abdominal veins have been found generally distended; but in several instances, the vena portæ and meseraic veins have constituted an exception to this rule, having been found empty. Vascularity and pulpiness of the mucous lining of the stomach have been frequently noticed; but the former has often been slight in degree, and observers have felt disposed occasionally to attribute it to the exhibition of mustard or other stimulants; whilst the latter has by no means been invariably found. The lining of the intestines has been found in many parts vascular and pulpy; but these appearances are not invariable, both lesions having been found wanting, and the pulpiness more frequently than the vascularity. The peculiar secretion has generally been found in the intestines. The kidneys have been observed to partake of the general congestion of the venous system. The bladder has generally been found contracted, and either empty, or containing a small quantity of urine. No softening or other disease of the spinal marrow, a little venous congestion excepted, was discovered in the few examinations of this organ made here. In concluding this rather unsatisfactory portion of our subject, we cannot refrain from expressing a conviction that symptoms during life throw much more light on the nature of the disease and its appropriate treatment, than appearances after death.

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* Madras Reports, pp. 32, 34. Anderson on Cholera Morbus (Edinburgh Medical and Surgical Journal, vol. xv). Christie on Cholera (p. 47). Annesley, Diseases of India (2d edit., p. 106 et seq.). Account of the Appearances after Death, observed at Moscow, drawn up by doctor Keir.

7. *Nature of the Disease.* Many writers of great talent have preceded us in this branch of the subject, and much ingenuity has been displayed in the endeavor to trace all the phenomena of the choleric stage, which has been the principal subject of investigation, to a change in one part of the system. But it must be remarked that there is little accordance among medical reasoners as to the part of the body in which the phenomena of the disease are presumed to originate; for the nervous system generally, the ganglionic portion of it exclusively, the blood itself, and the lining of the digestive canal, have each found advocates equal in ability to plead their cause.* The diversity of these views is a proof of the intricacy of the subject; and probably, also, since they have all emanated from observing and ingenious men, an evidence of the variable nature of the disease; each reasoner being, perhaps, influenced by that portion of the general phenomena of the epidemic which predominated in the cases it was his lot most frequently to witness. Their partial nature, too, may be in a considerable degree ascribed to the unfortunate influence of the expression *proximate cause*, as a substitute for the more comprehensive term *essence* or *nature of the disease*, on medical reasoning. Even those who affect to use it as an equivalent term for *nature of the disease*, are yet insensibly influenced by the words they employ. Amidst the crowd of phenomena presented to their notice in certain maladies, they often assume, on very insufficient grounds, that some one fact is the original of all others; and this they invest with the title of *proximate cause*. If the facts related respecting epidemic cholera are compared with the explanations offered of them, it will be found that each medical reasoner has attributed the commencement of the phenomena of the disease to an affection of some part of the frame, which affection unquestionably exists in a very great number of instances, but neither with that uniformity nor with that priority of time which can warrant us in concluding that it was the cause of all the other symptoms. It seems a rational supposition that the remote cause of a disease may act, in some instances, first on one, in others on another part of the system, from some local weakness or peculiarity of individual constitution, or from some specialty in the mode of application of the cause; and yet that the disease shall retain in each case such a resemblance to a common type as shall prove its identity. It is likewise supposable that the remote cause may make a simultaneous attack on more than one organ or part of the system. Complex diseases, such as fever, appear to furnish examples of both these cases. The real philosophy of medicine seems to consist in ascertaining the actual state of the system of which symptoms are the signs; and if we can proceed, through the medium of these signs and *post mortem* appearances, to one sole change in one organ, the treatment is simplified, and science and art are gainers. But there are diseases—and this seems to be one of them—in which we meet with a variety and complexity of pathological conditions, all of importance, and all to be kept in view in their treatment. It is true that, of these conditions, some may arise from others, according to known physiological laws, as dark-colored blood from impeded respiration, and it is right thus to explain them when possible; but the uniform endeavor to trace all to one primary change, or rather, as is more frequently done, to assume one change to be primary, and all other morbid states to be but emanations from it, is not only unphilosophical, but is too apt to tinge our practice with undue partiality. Whilst we deem that no one writer has attained, either by inferences drawn from symptoms, appearances after death, or both, a

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* These are doctor Kennedy and Mr. Orton for the first, Mr. Bell for the second, Mr. Annesley and others for the third, and Mr. Christie, with Roche and other French writers, for the last.

knowledge of the affection of any one organ in cholera which can be properly termed a proximate cause whence all the other phenomena arise; or acquired precise ideas respecting the nature of the affection of many organs which manifestly participate in the disorder; it is gratifying to acknowledge that their labors have thrown much light on the condition of many parts, and that very great practical good has resulted from the information thus obtained. That the nervous system generally, and especially the ganglionic and spinal nerves, and the spinal medulla itself, are affected, is manifest from many symptoms; but whether this affection arises from a direct impression of the remote cause of the disease on these organs, or from irritation propagated from the alimentary canal along the ganglionic nerves to the spine, we are ignorant. Doctor Keir's able researches have shown that, in some fatal cases, inflammation of a portion of this system has existed; but its precise pathological condition in cases which terminate favorably, remains yet to be ascertained; and it must be remarked, too, that, in fatal cases, this inflammation has not been always detected. The state of the sanguiferous system is very remarkable; but here, too, we must feel some doubt whether the feebleness or almost complete arrest of the heart's action is a primary effect of the cause of the disease, or, as suggested by Mr. Bell, arises from the affection of the ganglionic system; or, again, whether it results, through the medium of this system, from the condition of the alimentary canal. Is the dark appearance of the blood to be explained by the feebleness of the action of the right ventricle, as a consequence of which but little blood is transmitted through the lungs and exposed to the influence of the air? According to this view, which is suggested with diffidence, the imperfection of the respiratory process will arise from the same cause as in congenital malformation of the heart, such as the persistence after birth of the foramen ovale, or the aorta arising from both ventricles, in which a very small proportion of the whole mass of blood is oxidized. This hypothesis explains readily the dark appearance of the blood, its accumulation in the great veins of the viscera, the coldness and lividity of the skin, and the imperfection of the respiratory process, which has been so ably illustrated by doctor Davy. This gentleman was the first to show that the air expired by patients in the choleric stage is colder, and contains less than the usual proportion of carbonic acid; and that this is the case even when the breathing is full, free and rapid. The explanation offered is confirmed by an observation of Mr. Ellis, in his experiments on respiration, that "as the circulation declined, so likewise did the emission of carbon, and, consequently, the production of carbonic acid." The thickened consistence of the blood receives a ready explanation from the loss of its serous part by the abundant discharge from the inner intestinal surface. There are two morbid conditions of the lining of the digestive canal. In one it is in a state of manifest inflammation; in the other it is white and pulpy, and easily detached from the subjacent coat. Is this latter condition the result of a disorganizing inflammation which has itself passed away? or must we be content to describe the action which has produced it by the very unsatisfactory and vague expression, disturbance of the function of nutrition? This is a question rather of general pathology than one connected solely with this disease; but it is one as yet undecided. The affection of the alimentary canal is essential and primary, if any part of the disease is so; and it were vain to attempt to trace it to a morbid condition of any other organ or system of organs. The general suspension of secretion, which is complete only when the collapse is extreme, appears to result from the disorder of those systems, the nervous and vascular, on which this important function depends. The apparent anomaly presented by the continuance of the cutaneous and intestinal discharges amidst the general suspension of secretion, is well explained by Mr. Bell's distinction between this function and exudation or exhalation.* That the whole series of phenomena results from the action of a morbific poison on the body, there can be no doubt; but as yet, as in the case of fevers, we are ignorant of the precise nature of the primary change effected by it in various organs or systems; and it is to be feared that till more accurate ideas are attained respecting the pathology of fever in general, this ignorance will remain. In the febrile stage, we would remark, there are indications by no means equivocal of inflammatory affection of the brain, and occasionally of other organs, the analogy to fevers in general being in this respect preserved. Were we to judge solely from what we have ourselves observed of the commencement of the disease, we should

* Treatise on Cholera Asphyxia, pp. 56, 57.

consider the alimentary canal to be the part of the frame which first felt the influence of the poison; but we should consider the condition of the nervous and vascular systems much too intense in degree to be merely sympathetic of the state of the stomach and bowels. Many cases, moreover, reported from abroad, particularly from India, lead to the opinion that in various instances the nervous system is primarily affected.

8. *Proportionate Mortality.* The mortality during the early prevalence of the epidemic in India in 1817 and 1818 was very great; but, either from the abatement of the intensity of the disease, or from the improvement of the method of treatment adopted by our medical men, or, as is more probable, from the coöperation of both these circumstances, it was subsequently very much reduced. There is no disease in which unassisted nature seems more powerless than this. We learn from the report to the medical board at Bombay, that there is reason to believe that, of 1294 cases which received no medical assistance, every individual perished; and it is added, that it is not ascertained that any case has recovered in which medicine had not been administered. From this appalling statement, it is gratifying to humanity to turn to the following records. According to the documents collected by the Madras medical board, the number of deaths caused by it in the army of that presidency during 1818 and the four subsequent years, was 4430, of which 695 occurred among the European troops, and 3735 among the sepoys. The number attacked was 19,494, namely, 3664 Europeans and 15,830 natives. The average strength of the army during the period included in the reports being 10,112 Europeans and 73,254 natives, it follows that, in five years, 23⅓ per cent. of the troops were attacked, and that of these 22¾ per cent. were carried off, or 5⅓ per cent. of the whole force of the army. This statement, though sufficiently distressing, is still a proud monument to the skill of the medical men employed, and to medical science in general. We hear, in different situations, of rates of mortality infinitely lower than this. Doctor Burrell, surgeon of the sixty-fifth regiment, reports, for instance, from Seroor, that out of sixty cases he lost four, being at the rate of 6.6 per cent.; whilst Mr. Crow, at the same station, makes the ortality much less, declaring that the sease is not fatal in more than one in a ndred of those who are early succored. Doctor Burrell found, too, that of a certain description of cases, those attended with violent spasms, he saved eighty-eight out of ninety.* In taking these estimates into consideration, we must always recollect, however, that, in epidemics, there is often a very wide difference in the gravity of the disease at different points or in different years,—indeed, sometimes at nearly the same point and in the same year; so that, when we hear of an extremely small loss in proportion to the number attacked, long experience does not permit us to doubt that in such a case the type of the disease has been very mild. The ravages of the disease in civil life, amid a comparatively unorganized population, where prompt assistance could not always be rendered to the sufferers, furnish a considerable contrast to this statement from the British army, and strongly confirm the opinion expressed of the importance of early treatment in a malady so rapid in its course, and in which the efforts of nature are so impotent. At Bushire, in the Persian gulf, we learn from Moreau de Jonnés, that in 1821 a sixth part of the inhabitants perished; and at Bassora, in the same year, Mr. Rich informs us that eighteen thousand died, of whom fourteen thousand perished within a fortnight. The number attacked in Moscow from September, 1830, to January of the following year, was 8130, of which perished 4385, or fifty-four per cent.† In the small town of Redislscheft, of eight hundred sick, we learn from doctor Reimann, that seven hundred died in one week. The greatest success which has attended the treatment of the disease in the Russian empire, so far as the records have reached us, occurred in the district of Orenburg, the number attacked being 3590, of whom 865 perished, or about twenty-four and one tenth per cent., a result creditable to the vigilance of the Russian government, and to the skill and care of the medical men employed. The treatment adopted was that of our Indian practitioners—bleeding, calomel, opium, warmth and friction.‡ The disease having, there is every reason to think, run its course through the town in which these observations were written [Sunderland], it may not be uninteresting to mark the amount of its ravages. A simple cal-

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* Bombay Reports, p. 68, &c.

† Memoir of doctor Loder, physician to the emperor at St. Petersburg, dated January, 1831, and read at the academy of medicine at Paris.

‡ Substance of a report published by the supreme medical board of Russia.

culation shows that the mortality amounted to one in two hundred and one and a fraction of the whole population in which the disease prevailed: that of Sunderland was as one to about a hundred and fifteen of its population; that of Bishop Wearmouth as one to seven hundred and six, and, exclusive of Ayre's Quay, as one to somewhat more than one thousand; and that of Monk Wearmouth as one to three hundred and fifty-four. There is nothing very alarming in such a rate of mortality as we have described: it is high on the number attacked, but low on the amount of population; and the former circumstance, and the rapidity of the disease, will probably be found to constitute its most appalling features, if its course elsewhere in this country resemble that observed here. Other epidemics which visit us exceed it, whether we regard the number or the quality of victims, in the amount of evil inflicted; but none is to be compared with it in fatality, in proportion to the number attacked, or in the rapidity with which it accomplishes the work of destruction. Our friend doctor Ogden has furnished us with the following calculation, which is interesting, provided the results of similar calculations made elsewhere in this island correspond with it; for it will thus be shown that, in one point of some importance,—the proportion of the sexes attacked,—the disease here observes a course directly the reverse of that witnessed elsewhere in its progress. Cases of cholera, known to be such, buried at Sunderland, between the 28th of October and 22d of December:

Age.	Males.	Females.	Total.
15 and under,	12	13	25
From 15 to 50,	14	33	47
Above 50,	37	36	73
	63	82	145

Besides showing that, at the period of middle life, the number of female victims of the disease is double that of males, and that at the two extremes the numbers are as nearly equal as possible, this table shows how large a proportion of aged persons the whole amount of mortality comprises, these constituting more than one half of the total of deaths. The preponderance of attacks in females over those in males, at the period of middle life, is probably to be explained partly in the manner suggested by doctor Ogden, that the dress of the latter sex furnishes a better security against cold than that of the former; and in part by the circumstance that males, at the working period of life, are better nourished than females, being frequently the only members of the family who partake of animal food.

6. *Extent of Diffusion, and Causes of the Disease.* On the first branch of this subject, we cannot be wrong, so frequently have its details been presented to the public, in assuming considerable knowledge, on the part of our readers; or in referring those who may wish for more minute information than is ordinarily possessed, or than we have space to give, to the admirable chronological table of M. Moreau de Jonnés. The present epidemic originated in the district of Nuddea, and perhaps in some other parts of the Delta of the Ganges, about the end of May or the beginning of June, 1817. It did not, during that year, extend beyond the territory of Lower Bengal; but in 1818 and the early part of 1819, it diffused itself throughout the extreme length and breadth of the Indian peninsula, moving in lines more or less diverging, and attacking in succession places generally more remote from the seat of its origin (though striking deviations from this rule were occasionally observed), and situated in various directions from it; but leaving untouched many districts placed between its lines of movement. Its progress along the lines it selected was wonderfully uniform, being, for some successive months, at the rate of about one degree in a month. As early as 1818, it extended itself beyond the boundaries of Hindoostan into the Burmese empire and other territories of Eastern Asia, and, making gradual progress through these extensive realms, reached China in 1820, and, in the following year, visited the numerous and populous islands situated in the Indian archipelago. The isle of France suffered its invasion in 1819, and some cases occurred in the same year at one point in Bourbon, in which island it has not since appeared. In 1821, it extended along the shores of the Persian gulf, and, during this and the following year, spread through parts of Arabia, Persia, Mesopotamia, Syria and Judea, and closely threatened Europe. It appeared in the Russian territories in 1823, at Saillan, Ghillan, Orenburg and Astracan; but its farther northern and western progress was for a time arrested. It, however, reappeared in Orenburg in 1828, and again in 1829, and in 1830 advanced through the southern provinces of the Russian empire till it reached Moscow, on the 28th of September of that year. Its subsequent progress through Russia, Poland, the Austrian do

minions, the north of Germany, and in England, is too familiarly known to render it needful that we should present its details to the reader. The space traversed, as yet, by this extraordinary epidemic, may be conceived from the following simple calculation. The Philippine islands form (so far as is known) the eastern, and Mauritius the southern, boundary of the disease. The former lie in east longitude 125°, and the latter is in south latitude 20°. Archangel is the most northern, and the vicinity of Edinburgh the most western, point to which it has extended. The former is in north latitude 64°, the latter in west longitude 3°. Hence it is manifest that the disease has passed over 128° of longitude, and 84° of latitude. The questions naturally occur, What agent first generated the disease? and, What has subsequently diffused it over so large a portion of the globe? The first question must be answered by a simple statement of the facts, that it originated in the district mentioned, after an unusual disturbance of the seasons with respect to alternations of heat and moisture; that it made its appearance at the commencement of a rainy season, so excessive that the Gangetic Delta was converted into a sheet of water; and that the very first point in which it was observed was the district of Nuddea, noted for the endemic prevalence of cholera, where the whole year had been rainy, and during every week of April and May (it began to manifest itself in the latter month) there had been a succession of thunder-storms. From this district it appeared to diffuse itself over the rest of Hindoostan, its progress throughout the country being accompanied, as Mr. Orton informs us, by circumstances somewhat similar to those which attended its origin. The second part of the question cannot be dismissed so lightly. As is well known, the doubt and difficulty regarding the subject exist chiefly with respect to the share which *contagion* has had in its diffusion; and this question we shall endeavor to discuss as succinctly, and certainly as dispassionately and fairly, as possible. That our opinion, in the course of the investigation, has fluctuated, we feel it no discredit to avow. This fluctuation was either prior to the appearance of the disease in this country, or to our having it a sufficient length of time under observation to enable us to attain a settled conclusion; and when we show the conflicting nature of the evidence, from which, under the circumstances mentioned, a conclusion was to be drawn, it will be manifest that fluctuation or total scepticism must have been its result. As this evidence consists of facts already before the public, we shall, for the sake of brevity, rather refer to than detail them, classing them, as nearly as their nature admits, according to the very precise rules laid down by doctor Alison for discriminating the operation of contagion.—1. Strong evidence of a disease being contagious is furnished by its appearance in communities previously healthy, shortly after the arrival of persons from infected districts, who are themselves suffering under the disease, or who sicken of it soon after their arrival. A striking example of this sort is related, in the Madras Report, of the appearance of the disease at Jaulnah, after the arrival of a detachment there from Nagpore, then infected, and its subsequent diffusion from the former place to the towns of Malligaum and Hydrabad, and various villages. Other cases, though few so striking as this, might be selected from the Indian records; but we prefer referring to examples which occurred in the Russian epidemic. In the fortress of Razüpna, in that of Iletsk, and, towards the close of the epidemic, at Caramala-Gubeerra, all in the government of Orenburg, the invasion of the epidemic coincided, in point of time, with the arrival in them and sickening of persons coming from infected places. It should be remarked, however, that in these cases communication was not always traced between the individuals subsequently and those first attacked; and in the case at Razüpna, it is distinctly mentioned, that of the individuals who visited the man first seized on his arrival from Orenburg, then infected, not one took the disorder.* Into the opposite scale, that of the non-contagionists, may be thrown facts which tend to prove that it has originated in districts previously healthy, without any ascertained communication with infected persons, and that, on the other hand, the most ample intercourse has existed on various occasions between healthy and infected communities, without the former having participated in the disease. Its introduction into the city of Orenburg, in 1829, was not only not traced to communication from an infected district, but a conjecture that it might have been introduced either by the caravan, which arrives from Central Asia at midsummer, or by the Kirghis, a semi-barbarous Tartar horde, from whom the government of Orenburg is separated by the river Ural, was, if not disproved, rendered in the highest degree improbable.* "When the disease attacked the sixth regiment at Colabah, in July, 1828," says Mr. assistant-surgeon Spence, of the fifty-second regiment, "its commencement was a remarkable proof against its contagious nature. It was in the midst of the rainy season, and not a case had been seen for months either in or near Bombay, when assistant-surgeon Campbell, in paying his evening visit to the hospital, found an old soldier, who had been under treatment some time for hepatic affection, suddenly seized with cholera. He went to the opposite extremity of the building for the purpose of consulting with the surgeon, and found him busily employed with another man, who had been almost simultaneously affected. Now, it is physically impossible that these two individuals could have received the disease by contagion, because that which does not exist cannot have issue." The disease proceeded with unabated violence, till it destroyed sixty men and several women.† The following example of personal intercourse between the healthy and infected without communication of the disease, is taken from Mr. Annesley's Sketch of the Diseases of India. Cholera attacked the field force stationed at Shalligaum in Kandiesh, and raged with great violence among the corps posted on the left of the line, while the seventeenth battalion of native infantry, who were posted on the right of the line, were exempt from it, though they had constant communication with the other men. 2. The gradual diffusion of a disease throughout a limited community, those near the sick being first attacked, and others in succession in proportion to their proximity, is strong evidence of a disease being contagious. But this evidence has rarely been furnished by cholera: the general statement from India, indeed, is of a totally opposite nature; for we learn that, on its appearance in any place, numbers are simultaneously attacked, and that, after committing unheard-of ravages for a short period, its cessation is as sudden as its invasion. One example, however, resembling in some degree this gradual diffusion, is given in the Russian reports; and this is furnished by the staff-physician, doctor Schimanski, with regard to the extension of the disease at Iletsk. He says he was able to trace the progress of the disease in the first eight cases, thus:—The husband of the woman (a soldier's wife) from Orenburg, was taken ill three days after her; and about the same time, also, two girls, who lived in the immediate neighborhood of the soldier, and who visited him soon after his arrival from Orenburg; the aunt of these girls, who nursed him, was next attacked; and from her it passed to her own two sons.‡ 3. There is no circumstance connected with the disease, on which the information received from different quarters is more contradictory, than the comparative liability to it of attendants on the sick and other members of the community. From India the testimony on this head is so conflicting that no conclusion can possibly be drawn from it: a state of complete scepticism is that in which it leaves the mind of an honest inquirer after truth. That from Russia is not of a much more decisive character: such as it is, we shall present it to the reader. During two months, observes professor Lichtenstadt, while the disease prevailed at Orenburg, and 299 patients were admitted with cholera into the military hospital, the personal attendants on the sick remained entirely exempt from the disease. They consisted of one hospital assistant, six pupils, as many Baschkir lads, and fourteen hospital servants, in all twenty-seven; and their duties were to perform blood-lettings, apply leeches, poultices and frictions, and administer baths, and the like, so that they were compelled to be constantly breathing the exhalations from the bodies and clothes of the sick, as well as to touch and handle them. The washerwomen of the hospital likewise escaped—a class of individuals, who, it is well known, are extremely apt to suffer from contagious diseases. On the other hand, doctors Russell and Barry inform us "that the number of medical men and hospital attendants attacked with cholera during the present epidemic, in proportion to the whole employed, and to the other classes of society, has been, beyond all comparison, greater here (St. Petersburg) than in India, under similar circumstances: twenty-five medical men have been already seized, and nine have died out of 264. Four others have died at Cronstadt, out of a very small number residing in that fortress at the time the disease broke out there. Six attendants have been taken ill at a small temporary hospital behind the Aboucoff." With regard to this last circumstance, it is not stated, as in another report by the same gentlemen (not published), bearing date 4—16 July, that "in the great Aboucoff hospital, where there were no cholera patients, but to which a temporary cholera hospital was attached behind the building, ten persons, residing within the area of the establishment, had been severely attacked up to the 12th instant (N. S.), with cholera." This leaves a very different impression; and, not being aware of what is meant by "the area of the establishment," we cannot form an opinion how it may or may not bear towards the side of contagion. In the last mentioned report, those gentlemen also state, that in the military general hospital, in which four hundred cholera patients had been admitted from distant quarters, up to the morning of the 13th, "one attendant had been attacked." But one attendant where so many cases had been treated! These specimens, taken from an immense mass of foreign evidence, will suffice to show its conflicting nature on points essential to the decision of a much litigated and very important question. There are certain branches of the subject, such as the immunity apparently afforded by seclusion, which we have designedly omitted; partly because they were unavoidably exposed to sources of fallacy, and the testimony regarding them was of the same conflicting nature as the specimens which we have already presented to the reader; and partly that we might preserve space for an examination of the question, how far the general progress of the disease favors the opinion that human intercourse has been the instrument of its diffusion; and for the narration of certain facts illustrative of the general question which have fallen under our observation. The progress of the disease on the great scale having been tolerably regular, both geographically and chronologically—that is, its having passed from country to country, without leaving interjacent countries untouched, and those infected having been so in some proportion, in point of time, to their distance from its original source—has been appealed to by two parties, as evidence of the accuracy of their opinions; the one seeing in it a proof of a continuous stream of epidemic influence, flowing from the point where the disease originated; the other, a transport of the malady by human intercourse from the same source. To the opinion of a flow of epidemic influence, have been objected, and apparently with justice, the slowness of the progress of the disease; that it has extended its territory in spite of the opposition of continued and violent monsoons; and that, notwithstanding a degree of general regularity of progress, there have been anomalies observed in its course (such as its having left districts untouched, whilst all around them were suffering), utterly irreconcilable with the opinion advanced. On the other hand, circumstances have been observed, which render it almost equally questionable whether contagion has been the sole instrument of its diffusion. It has been asserted, by the advocates of the exclusive operation of this principle, that the disease has always been found to move in the line of human intercourse; and it must be acknowledged that, whilst so migratory an animal as man inhabits the earth, it cannot well do otherwise; but if it is meant to be asserted that its diffusion has been in proportion to the intercourse between infected and healthy districts, the assertion is by no means supported by facts. Its appearance at Madras, for instance, whither, according to this doctrine, it ought to have been conveyed almost three months earlier by trading vessels from the infected districts, was simultaneous, as Mr. Bell informs us, with its origin in parallel latitudes in the interior. It did not reach Ceylon, to which, on the contagious principle, it ought to have been conveyed at a much earlier period, by shipping from infected points of the coast, until it had previously gained the nearest point to it on the continent, about Adam's Bridge, and had been long prevailing on both coasts of the peninsula.* Unfrequented villages have been observed to suffer the invasion of the disease as early as the marts of intercourse and commerce: thus, from a statement of Mr. Orton, it seems to have reached some villages on the north bank of the Cavery,—detached from any frequented road, and considerably to the eastward of Trichinopoly,—quite as soon as this large and frequented town, whither it appeared to have been imported by a company of sepoys.† Its movement along navigable rivers has been dwelt upon as evidence that human intercourse has been the means of its diffusion; and it is an argument of some force in showing that such intercourse may have oc-

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* On the Asiatic Cholera as it appeared in Russia in the Years 1829 and 1830, by doctor J. R. Lichtenstadt (translated in the Edinburgh Medical and Surgical Journal, No. cviii).

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* Ibid.

† Taken from Mr. Spence's Manuscript, since published in the Medical Gazette.

‡ Edinburgh Medical and Surgical Journal, No. cviii. p. 130.

* Orton on Cholera, 2d ed., p. 332

† Ibid., p. 331.

casionally been instrumental in effecting it; but when we are informed by Mr. Orton, that the disease manifested this predilection for the course of rivers in the peninsula of Hindoostan, "where navigation is scarcely carried on, even to the most trifling extent, on any river, and scarcely an instance can be mentioned of a great road running on the bank of a river, for they almost all cross them," we must acknowledge that more weight has been attached to the argument than it is calculated to bear. The disease, in its general course, has manifested a preference for one line of movement, and has rejected another, though there has been no striking difference in the amount of human intercourse between the two directions, to explain the preference and rejection. Its progress in a north-western direction, across the European continent, has been briefly described, and is fully known to the reader. For three years, it prevailed in the Ottoman territories bordering on the Levant, and, it would appear, without any deficiency in the productive (or at least destructive) force of those germs of which we have recently heard so much; for in November, 1822, it numbered 4000 victims in eighteen days, in Aleppo; yet it has not penetrated into Turkey in Europe, and other extensive realms on the shores of the Mediterranean. Assuredly this could not arise from want of means of transport; and few will be disposed to ascribe it to the perfection of the quarantine department of the Sublime Porte. Since its appearance in this country, a similar predilection has been displayed; for we find it at this instant a hundred and forty miles to the north-west of Sunderland, whilst six miles south is the extreme distance to which it has reached in that direction; and from the point which it attained, Seaham harbor, after attacking eight persons and destroying three, it has since vanished. A circumstance which may be urged against the exclusive operation of contagion (and it is against attributing too much to one principle alone that we are arguing), is the unusual prevalence of disease, bearing a considerable relation to epidemic choleric fever, which generally occurs prior to the appearance of this in any given locality. The facts which might be mustered in proof of the antecedence of such disease, are far too numerous and consistent to be accidental. Ordinary cholera, sporadic cases not distinguishable from the epidemic, excepting by the isolated manner in which they occur; epidemic diarrhœa; gastric and intestinal fever, have been observed in so many situations, and by so many individuals, from 1817 to the present instant, to have been the precursors of the disease, that there cannot be a reasonable doubt of the accuracy of the observation. During the last year, the prevalence of these affections, in various parts of this country, has been matter of familiar remark among medical men, and many of them have very properly taken care to record their observations.* In this neighborhood, what Mr. Orton felicitously terms the skirts of the approaching shower, were manifest long before the epidemic made its formal inroad. Ordinary cholera was most unusually prevalent; whilst cases of disease, certainly not distinguishable by symptoms from the epidemic, occurred on the 5th, 8th, 14th and 27th of August; and cholera continued to be very prevalent and severe throughout September. The cases which occurred in August were not matters of secrecy, but were the subject of conversation among the medical men of the place; and the writer frequently made the remark, that we were partakers of an inferior degree of the epidemic influence which existed on the continent. But certainly at the time he did not (nor does he yet) ascribe them to imported contagion; nor did he then conceive that we had, properly speaking, the epidemic among us. Whatever view others may now feel disposed to take of these cases, it would be difficult for them to suppose that the case we have mentioned, as having occurred in the interior in the beginning of July, was attributable to foreign importation. Under either view, as it appears, whether we conceive that a current of contagion flows towards a district, or suppose the disease to be engendered there by indigenous causes (not customary ones certainly, any more than those which existed in the Delta of the Ganges, in 1817), and then to be invested with some contagious property, which observation of the disease will induce most candid persons to admit it possesses, it requires the operation of two principles to explain all the facts of the case; for even on the first supposition, we are compelled to imagine this double operation to be in progress,—a current of contagion to be flowing from one point, and a *nidus* for its reception to be preparing in another. We have been led to the conclusion that the disease possesses a contagious property from having observed that a considerable proportion of attacks have taken place in individuals shortly after communication with the sick, or exposure to emanations from the dead bodies, and, in part, from a few examples having occurred of the disease appearing in parts of the town or neighborhood where it did not previously exist, on the sickening there of persons who had communicated with the infected districts; but, at the same time, we beg to remark that there are circumstances which tend to show that this property is abstractly feeble in degree, and to render it more than questionable whether it can be the sole agent in diffusing the disease. This opinion is founded on the singular anomalies observed in the course of the disease, and which still mark its progress, and on the following considerations:—1. Members of that class of society which has manifested the strongest predisposition to the disease, have been very long exposed to the emanations from the sick, under circumstances the most favorable to the propagation of the disease, without being infected. 2. No death, and scarcely an attack of serious indisposition, has occurred among the medical men, though they have spent hours in the patients' chambers, assisting in frictions and other offices usually performed by nurses, and, from the fatigue they were undergoing, might be supposed to be peculiarly obnoxious to contagion. 3. Medical practitioners have not, in any ascertained case, conveyed the infection in their clothes to patients whom they were attending for other diseases, or to their families. Certain of them have mingled unreservedly with their own families, after long attendance on cholera patients, without any indisposition, however slight, occurring in consequence. It is proper, however, to remark, that two cases have occurred, one of them a fatal one, which might be attributed to the intercourse of medical men with their families. 4. When the disease has appeared in a private family, in a situation in life above the laboring class, it has been confined, so far as the writer's knowledge extends,—and he is of opinion that he is acquainted with the circumstances of all the cases of the kind which have occurred,—to the individual first attacked, and has not, in any instance, spread to the other members of the family; nor have, in these instances, nurses, or other casual attendants on the sick, suffered, though belonging to a class more obnoxious to the disease. 5. The agricultural villages in the immediate neighborhood of Sunderland, which had, throughout the whole progress of the epidemic, the most unreserved intercourse with us, remained and still remain exempt from the disease. The populous village of Deptford, situated near the river, at the distance of half a mile from Ayre's Quay, where the disease was very prevalent and fatal, and having the most constant communication with it, partakes of this exemption.* The town of South Shields, containing nearly 14,000 inhabitants, and distant from Sunderland but seven miles, remained exempt from the disease (with the exception of two cases, stated to be very slight, and not traceable to any communication with this place), during the whole of its epidemic prevalence here, though calculations have shown that eleven hundred persons pass weekly between the two places. Explanations have been offered of this exemption; but they appear inadequate, if we suppose this disease transmissible to every locality by human intercourse, since typhus, scarlatina, and other infectious diseases, frequently prevail there to a great extent. Even to the present moment (Feb. 2, 1832), though its intercourse with Newcastle and other infected places has been incessant, but seven cases have occurred, and, as our intelligent correspondent there remarks, "We have not as yet got the disease as an epidemic, the cases have been so few and far between." 6. Though the disease has appeared, in certain cases, to be transferred to previously uninfected districts, by spreading from persons who had sickened there after arriving from places where the disease prevailed, yet facts have occurred which tend to show that the sickening of such persons and the diffusion of the disease have, at least in some instances, been mere coincidences. A woman of the name of Liddle, who lived in Sunderland, sickened at the town of Houghton-le-Spring, six miles from this place, and died on the 5th of December. The next case occurred on the 8th of the same month, in the person of a female named Cockburn, who lived at a considerable distance from the house where Liddle died, and in a different street, and had had no communication with her, direct or indirect; the family of the house in which the death occurred, and the persons who surrounded Liddle in her illness, escaping all infection. In many other instances in which the disease has appeared in a mining district or village (and it has spread extensively in such situations), the first cases could not be traced to communication with infected places. In certain cases, however,—and we shall mention that of Hetton,—the persons first seized had been in communication with infected districts. 7. On the first appearance of the epidemic in certain places, several have been simultaneously attacked; at Earsden colliery, for example, thirty-two. On its first breaking out here, it manifested itself in three distinct points, between which no communication could be discovered; and the attacks in two of these points were simultaneous. It could not be traced from any source of infection to the individuals first attacked. In many instances, likewise, instead of residents in the same house being successively attacked, its invasion of several has been simultaneous. 8. There were feelings experienced by various persons, either otherwise in perfect health, or laboring under complaints distinct from the epidemic during its prevalence here, such as spasms, thrilling sensations of the extremities, and various affections of the nervous system, which appeared to betoken the influence of some cause more generally diffused than contagion; since many persons thus affected had not been exposed to any source of infection. The writer was at first disposed to attribute these occurrences to the influence of imagination; but they occurred in too many instances, and in persons too little sensitive and imaginative, to allow him to adhere to this explanation. After assigning these reasons for questioning the exclusive operation of contagion, we think it right to remark that epidemic choleric fever has committed fearful ravages in some families, especially in those of which the circumstances were calculated at once to give intensity to the causes of the disease, and to render the individuals composing them more obnoxious to the action of such causes. Of one family, seven were attacked with the disease, of whom five perished. The case of the first individual of the series constituted one of the sporadic cases; and it is incredible that the next in succession should have received infection from him, four months having elapsed between the dates of the respective attacks; but it is probable that contagion was transmitted from the second and subsequent cases, the diseases having commenced on the following successive dates—the 11th, 12th, 13th, 16th, 17th and 20th of December. The case which occurred on the 20th was that of an infant, aged thirteen months, taken from the breast of the fifth patient in the order of succession. Many other examples of transmission through families have occurred, but few so striking as this. We are disposed to attribute to contagion its full share in the production of such cases, aided by the circumstances of night-watching, neglect of order and cleanliness, &c., which are accompaniments of sickness in the dwellings of the poor; but we must remark that cases have fallen under our observation, and come to our knowledge, which show a proneness to the disease in certain families, independent of reception from a contagious source. The following is an example of this kind: A respectable female, living in the village of Jesmond Vale, where the disease did not exist, and who had had no intercourse with the sick, received a letter, announcing that a sister, whom she had not visited during her illness, and who resided at Hartley, a distance of nine miles, had died of the complaint. She sickened in an hour from the receipt of the intelligence, and died in thirteen hours from the commencement of the attack.* The following propositions appear to be reasonable corollaries from the facts presented by this extensive and intricate subject. 1. Epidemic cholera originated in a certain district under peculiar atmospheric circumstances; but, these circumstances having previously occurred in the same district without the production of a disease identically the same, we must regard its terrestrial or atmospheric cause unascertained. 2. On many subsequent occasions, there have been marks of its commencement and gradual rise in other districts, which show that, in their soil or atmosphere, there has been a tendency to the production of the disease from causes equally unascertained as those which first originated it, and, in such districts, it has ultimately displayed itself. 3. It has thus appeared to arise in various districts, not by any means always continuous with those previously contaminated, but often situated in some general direction with regard to them, declining in one district as it arises in another, and thus appearing to move in a succession of local epidemic visitations. 4. Within the district which it occupies, it possesses a contagious property, or, in other words, those individuals who have intercourse with the sick, especially in a locally impure atmosphere, are attacked in a greater proportion than other members of the community; and it is probable that this same contagious property may be the means of diffusing it through a district disposed to the production of the disease, earlier than it might have risen spontaneously there, or of exciting it in a district in which, notwithstanding a degree of predisposition, epidemic choleric fever might not have arisen spontaneously; but facts which we have mentioned tend to render it questionable whether it can be thus transferred to districts unpredisposed to receive or engender it. 5. Within the district where it prevails, ordinary endemial causes mingle their agency with that of the general cause of the disease, and the malady is found to vary in prevalence and intensity in different portions of the same district: thus the disorder is found to assail more individuals, and to be more destructive in parts which are dirty, and in those placed low or near the banks of a river, than in portions of the district differently situated. The effect of these endemial influences is illustrated by the progress of the disease in the town of Sunderland, and by the ravages it has committed in the village of Newburn. The latter place is built along the margin of the river Tyne, and between it and the river there intervenes only a bank, formed of a mixture of mud and sand, partially covered at high water, whilst a shallow stream of water flows through the village. Here, although the disease has not yet ceased, 320 persons have been attacked, and 55 have perished, out of a population of 550. 6. The character of the disease varies considerably in the different districts which it invades. Thus we had occasion to observe that, in a mining population dispersed over an extensive tract of country (the township of Hetton), the disease was attended with less collapse than in the lanes and alleys of a populous commercial town, and the mortality was consequently much less; for we cannot too strongly repeat what we have already remarked, that the collapse is the measure of the danger. These observations are made with no view of depreciating the medical practice adopted in that district, which was extremely skilful and prompt, and even with due allowance for the difference of the character of the disease, very successful. It should be remarked, moreover, that extremely collapsed were intermingled with the milder cases, but in proportions the very reverse of those we had observed elsewhere. In certain districts in Northumberland, we have reason to know the disease resembled, in its general character, that which prevailed at Hetton; but, among some other mining communities, the extremely collapsed has been the common form of the disease. We have remarked, too, that, whilst in some situations the cases have, almost without exception, commenced with diarrhœa, in others the proportion of instances in which this has constituted the initiatory symptom, has been smaller. This difference in the form of cholera in different local epidemic visitations, the cases occurring in any given district possessing a general correspondence in character, and being distinguished from those which occurred elsewhere, was observed in India by Mr. Scot; and it appears to us that this circumstance, coupled with the transmutation of the disease more and more into a febrile form, as it has approached more northern climes, displays a deviation from that sameness of character observed in diseases engendered exclusively by human contagion. It will hardly be expected that we should leave entirely untouched the question, whether the disease originated spontaneously in Sunderland, or was introduced from abroad; but the extent to which we have already pursued this intricate portion of our subject, forbids our discussing it at any considerable length. Those who reason from the postulate that the disease is diffused only by human contagion, will of course decide for importation; but others will very reasonably expect that, before this be admitted, it should be proved by the same positive evidence that would be required to substantiate any other fact of importance. Any thing approaching to this, or even any considerable probability of such an occurrence, we have been unable to discover; and we cannot but agree with doctor Ogden, that, whatever were the facilities for the importation of cholera here, they were much greater in other places; and that if it has been imported, so far from following the great routes of human intercourse, it has chosen one of the least frequented paths.* The predisposing causes of the disease, and the means to be adopted for preventing its diffusion, have been published to the world in such multitudinous documents, that we consider it unnecessary to occupy our

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* See doctor Burne's Dispensary Reports, in the Medical Gazette for July 2, and July 16, 1831.

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* There were two slight cases in this crowded village, inhabited by the class most susceptible of the disease; but it did not spread from them to the rest of the population.

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* Related to the writer by Mr. Greenhow surgeon, of Newcastle, who attended the case.

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* See Medical Gazette for January 21, 1832.

pages with remarks on subjects now so familiar.

Treatment. Previously to entering on this subject, we shall endeavor to correct the misconception which appears to prevail very generally among members of the profession, who have not as yet witnessed the disease, that some one specific remedy, or, at least, plan of treatment, must be sought for, and, when discovered, invariably adopted. The importance very properly attached by all writers to collapse, as a feature of the malady, and their candid avowal of the difficulty they have encountered in combating it, is the explanation of the fact that medical men who are practically unacquainted with epidemic cholera, have taken a view of its treatment, which, in the case of almost any other disease, they would have repudiated as unscientific. We know no condition more hopeless than that of extreme collapse in the disease: so hopeless, indeed, is it, that often have we questioned, in watching a patient in this state, whether our art at present possesses, or is likely to possess, any resources against it; or, in seeing him emerge from it,—and he has sometimes done so most unexpectedly,—whether the remedies employed, or some hidden power of the constitution, had been instrumental in effecting reaction. But it should be remarked that only in a proportion of cases—a proportion varying, as we have already observed, in different localities, and in the same locality at different periods of the epidemic—does this extreme collapse occur; and that even in cases of which the natural tendency is to pass into this deplorable condition, much may be done by early treatment for its prevention. These considerations should teach physicians and patients that safety is to be found only in the early administration of remedies; and the former, when brought into contact with the disease, will soon discover that success in its treatment must result, as in the treatment of other fevers, from adapting his remedies to the varying circumstances of individual cases, and of the different stages of the same case, rather than from the trial of specifics for one portion only of an extensive series of changes;—that his practice, in short, to be successful, must be rational, not empirical. In our observations on the treatment, we shall follow the natural subdivisions adopted in describing the disease.

1. *Treatment of the Incipient Stage.* We have adverted to two forms which this stage assumes. In the one there is some general uneasiness, nausea and vertigo: in the other these affections may coexist with diarrhœa, but the latter is frequently present without the former being discernible. The first of these forms, in which it may be remarked that medical aid is rarely requested, requires that the stomach should be unloaded by an emetic, and a table-spoonful of good mustard constitutes a very efficient one; a few ounces of blood should be drawn from a vein; a laxative of calomel and rhubarb administered; and the patient restricted to a diluent diet, and kept within doors and warm. The treatment of the diarrhœal form, to which circumstances witnessed by us lead us to attach considerable importance, must be noticed more at length. It was mentioned that, in this diarrhœal form of the incipient stage, the evacuations are at first found to be fœcal and bilious; but, at the time medical aid is summoned, they have generally assumed the serous character which they bear in the choleric stage. A state of the system resembling, in some degree, collapse, it was observed, coincided with this condition of the alvine discharges. In this state, it was found very advantageous to give a dose of calomel, conjoined with a proportion of opium and some aromatic,* and, in twelve or fourteen hours afterwards, a dose of castor oil. On first visiting such a patient, a large blister was generally applied to the abdomen, in the cases under our care; warmth was enjoined,—indeed, where compliance with our wishes could be enforced, the patient was confined to bed,—and it was directed that the diet should be diluent. The subsequent treatment consisted in the employment of smaller doses of calomel and opium for one or two successive nights, and a second dose of oleum ricini was sometimes administered. In certain localities, the writer has found the constitutional state accompanying this stage of the disease to be one of marked excitement rather than of feebleness and collapse; and some points of the abdomen have been painful on pressure. In such cases, one general bleeding, or the very liberal application of leeches to the abdomen, has preceded the employment of other remedies. In other respects, the same treatment has been found successful as that

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* The following is the formula we have usually employed:

℞ Hydrargyri submuriatis, gr. viii, vel x.
Opii, gr. ii.
Pulveris baccarum capsici, gr. i ſs.
Confectionis rosæ, q. ss. ut fiat bolus, statim sumendus.

adopted in the preceding form, excepting that no stimulating ingredient was mixed with the calomel and opium. Under these plans of treatment, we have the satisfaction to state that, in every case which has fallen under our immediate observation, the discharges have resumed their natural bilious appearance, and the diarrhœa has been finally arrested without the supervention of a cold stage, and, consequently, of fever, though the disease had occurred, in various instances, in persons who had been in incessant attendance on those ill of the feverish stage, and though, in all the cases, it bore the characteristic marks of what we may term *choleric diarrhœa*. It should be remarked, however, that the choleric stage has supervened, as we have been informed, on diarrhœa, which had been skilfully treated; but our inquiries have uniformly convinced us that, in such cases, medical aid had not been summoned till the diarrhœa had existed some time, and the subsequent stage was closely impending.

2. *Treatment of the Cold or Choleric Stage.* In order that we may be distinctly understood in our observations on the mode of conducting this very important stage, we must adhere to its subdivision into two periods.* The first period is certainly that in which alone our most powerful means of arresting morbid actions can be employed with a considerable prospect of success. It may be considered an axiom in medicine, that fevers, to be successfully, must be early treated; and the rule has a powerful application to a disease so rapid in its course as that under consideration. But there are many obstacles to its being generally acted upon amid a town population; and one considerable obstacle, we apprehend, will every where be found in that self-deception which seems to be quite a feature of the disease. We have met with persons to whom, from their peculiar situation, all the symptoms of this disease were as familiarly known as to medical men; yet, when they were attacked with it, they did not or would not recognise it; and one such individual actually walked out with the disease upon him, and failed to send for assistance till eight hours after its invasion, though it was so severe as to destroy him in twelve. So strong is this tendency to self-deception regarding the nature of the disease when the choleric stage actually occurs, that, wherever cholera prevails, strong appeals should be made to the public, on the necessity of early treatment of this stage, as well as of due care of that which generally precedes it. The first remedy to be considered is blood-letting; and we shall endeavor to point out the circumstances which, so far as our observation extends, indicate, and those which forbid, its employment. Its safe administration should be early, not according to mere time only, but with respect likewise to the rapidity of the disease; for one case will have made as considerable a progress towards actual collapse in two hours as another will have done in ten; and we should regard a considerable degree of collapse, indicated by feebleness or arrest of the circulation, and perceptible in the intervals of pain and spasm,—for when these occur, the pulse often sinks instantly, though only a second before it had been beating with considerable vigor,†—as an imperative reason for abstaining from drawing blood. But if we find the temperature not below, or but little below, the healthy standard, a pulse of tolerable force, and strong spasms recurring at short intervals, provided collapse have not preceded this favorable condition, we should at once open a vein, and not lose an opportunity, which will never be restored, of probably preventing extreme collapse, and either its immediate fatality, or its more remote, but scarcely less fearful evils. But should this condition, with respect to circulation and temperature, have succeeded to collapse, either spontaneously or by the administration of remedies, our experience would dictate that blood-letting should be carefully abstained from, as we have seen great injury produced, under such circumstances, by its employment; cases having fallen under our notice in which the loss of three or four ounces of blood has destroyed the fruits of two or three hours' assiduous labor. The difference in the effect of blood-letting on conditions apparently very analogous, but differing in the periods from the commencement of the attack at which they manifest themselves, cannot be too strongly impressed on the reader's attention. Perhaps the only difference in external character which can be discovered between the two states, will be the existence of spasms of considerable strength in the early period, whilst, in that more advanced, they have nearly,

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* The credit of this subdivision belongs originally to Mr. Kennedy. Experience in the disease having convinced us of its practical importance, we have adopted it in this article.

† Query. Does this sudden and momentary arrest of the circulation arise from spasm of the heart?

if not altogether, ceased; but, in the one case, blood-letting breaks the morbid catenations, and prevents collapse and congestion; in the other, it lowers the vital energies which are freeing themselves from a state of oppression. But again, in a more advanced stage, when the constitution is no longer balancing between collapse and fever, and the latter may be considered as established, bleeding is a suitable remedy, if the state of the circulation and the general condition of the patient render it admissible. Thus, then, there are three periods of the disease, at which, according to our experience, blood-letting may be employed: occasionally in the incipient stage, as has already been stated; in the early part of the first period of the cold stage; and at the commencement of the feverish stage, under circumstances to be subsequently mentioned. We have been explicit on this head, perhaps to prolixity, because we found great discrepancy in the testimony of various Indian and continental authorities regarding it; and, in the early part of our experience of the disease, the selection of the appropriate time for bleeding, and the circumstances which indicated or forbade it, constituted the greatest difficulty we had to encounter. The measure to be adopted next in succession to blood-letting, will depend on the condition of the patient. If, in a short time after bleeding, we find a circulation of tolerable force, without much tendency to general or partial deficiency of heat, and if, at the same time, there be pain in the epigastrium increased on pressure, a very common accompaniment of cases in which the tendency to collapse is least conspicuous, a large blister or inapism to the abdomen, and a dose of lomel and opium, in the proportion of m eight to twelve grains of the former ne and a half or two of the latter, will uitable remedies. Should the circu- , on the other hand, be feeble, with l or partial deficiency of warmth, uld endeavor to rouse the system vomiting; and powdered mustard proper means of accomplishing t. Half an ounce of this sub- spended in half an ordinary arm water, may be consider- dose, and one which, in a of instances, will act prompt- fully; but, in a more ad- the disease, when the col- extreme, a whole ounce d to produce the full ef- omiting, sinapisms may be applied to the abdomen and along the spine; whilst the warmth of the patient is supported by bottles of hot water wrapped in flannel, bags of hot oats, and other familiar methods of applying dry heat, directed to the extremities, or other points of which the temperature seems deficient. Frictions of the parts affected with spasm will at the same time be probably required, and should be performed under the bed-clothes. We have not found any beneficial effect, in relieving the spasms, from oil of turpentine or other stimulating embrocations; the coldness produced by their evaporation probably more than compensating for any benefit they are in other respects calculated to effect. A bolus of calomel, capsicum and opium, the latter not in a proportion exceeding a grain and a half or two grains, may be administered as soon as the vomiting from the mustard has totally ceased. The quality of the liquid given at this period ought to depend on the condition of the patient: if, for instance, the tendency to collapse be considerable, a little weak brandy and water should be given at short intervals; but, should the circulation be tolerably vigorous, and the temperature good, simple diluents, such as toast and water, constitute the most suitable beverage. Should the patient be in a state of considerable collapse, whether consequent on neglect of the earlier stage, or occurring, which will occasionally prove to be the case, in spite of the most diligent attention to it, blood-letting should not form part of the remedial agents selected. If the temperature be in any considerable degree below the healthy standard, with the hands cooling rapidly on exposure to the air; the pulse at the wrist either very feeble or totally suspended; the breath and tongue cool; the surface shrunk and pallid, or in certain parts livid; the vomiting and spasms diminishing in their intensity, or totally ceased;—at whatever period from the commencement of the disease this state of things may exist, bleeding should be abstained from. It will be advisable to endeavor to rouse the system by full vomiting; and half an ounce of mustard, or, if the attendant prefer another mode of accomplishing the object, two table-spoonfuls of common salt, a scruple of sulphate of zinc, or half a drachm of ipecacuanha, with a small

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ader some trouble to inform him that an ordinary table spoon, unheaped, contains half an ounce of mustard; and that the mustard sold in the shops under the name of *Durham mustard,* which is of a uniform bright yellow color, is the most pungent and efficacious.

proportion of brandy, may be administered. Should the emetic selected fail to produce its effect in a quarter of an hour, it ought to be repeated; or should the circumstances of the case lead the attendant to suppose that the sensibility of the stomach is very low, a larger dose of the emetic drug may be administered. We recollect having produced full vomiting by an ounce of mustard in a case of extreme collapse, in which two smaller doses had been administered successively without effect. Simultaneously with the exhibition of the emetic, dry heat should be applied by some of the methods already mentioned, or by that very convenient and simple apparatus, the hot air-bath. Various internal medicines of the stimulating class have been recommended for this state. Those of which we have been led to form the most favorable opinion are mustard, carbonate of ammonia, and oil of turpentine. The first-named substance we have not unfrequently administered in doses of a drachm (a tea-spoonful unheaped), at intervals of an hour or an hour and a half, apparently with the effect of giving additional vigor to the pulse, which had perhaps been restored by the vomiting; of producing bilious discharges from the bowels; of restoring the urinary secretion, and aiding the system in the transition into the febrile stage. If the carbonate of ammonia be the stimulant employed, a convenient mode of giving it is in doses of five grains every hour, with carbonate of magnesia, which makes it more easily retained should the stomach still retain its irritability. Should oleum terebinthinæ be selected, doses of two drachms may be given every second hour. Whatever stimulant medicine be employed, we should advise that calomel, in doses of five or six grains, repeated at intervals of three or four hours, should be given at the same time, with the view of aiding the restoration of secretion; and, with the intention of at once rousing the system and lessening the irritability of the stomach, that a large sinapism should be applied to the abdomen, and another along the course of the spine. Various stimulating nostrums, if applicable to any, certainly only to this period of the fever, have been bruited forth to the world as specifics for the disease. In many of these we are of course inexperienced, and of all we are convinced the powers have been overrated, in some instances from partial and mistaken views of the malady, and, in others, from less pardonable reasons. It will not be deemed necessary that we should pass them all in review; but, of certain remedies which have been proposed for collapse, the professional reader will require some notice. The inhalation of oxygen gas has been suggested from many quarters; and, in some cases in which it has been tried here, an instantaneous amelioration has been manifest, the pulse having become more vigorous, the lips florid, and the patient having experienced relief from præcordial oppression and other distressful feelings, to an extent and with a promptitude not afforded by any other measure. But the experience of medical observers in general has led them to conclude that this effect is very transitory; and some are of opinion that they have witnessed an increase of the collapse after the temporary excitement, as if the vital power, instead of being permanently increased by the measure, had been expended in a momentary flash. Of some gentlemen, however, the opinion regarding it is more favorable. Our own opinion is, that, inspired for a few seconds in single bladders, no great benefit is likely to accrue from it; but we should speak less positively of the effect of an atmosphere of diluted oxygen breathed for a considerable period. The tobacco enema has been suggested by Mr. Baird, of Newcastle, and, as he assures us, employed with considerable success. We acknowledge that *a priori* reasoning would rather have led us from this remedy than suggested it to us; but, knowing the fallacy of such reasoning in medicine, we are not disposed to treat with neglect, still less with contempt, a measure, of the beneficial effect of which a gentleman of talent and character adduces several examples. It was proposed after the disappearance of the epidemic from Sunderland, and we have no experience of it; but we would recommend that it should be tried in a case to the successful treatment of which other measures seemed inadequate, the practitioner being governed, as to its subsequent employment or rejection, by its effect. Two remedies have also been mentioned to us by an individual of talent, and of great experience in the epidemic, Mr. John Fyfe, of Newcastle: we shall, with his permission, make the reader acquainted with them. One is the employment, in the period of extreme collapse, of an enema consisting of two pints of warm water, from four to eight ounces of brandy, and from one drachm to two drachms of laudanum, or Battley's sedative liquor. This, he assures us, has the happiest effect in abridging that stage of the disease on the intensity and duration of which so much of the danger depends. The other is an enema containing a drachm of powdered mustard, which he has found to be very speedily instrumental in restoring the urinary secretion. This accords with our experience, as already stated, of the efficacy of this substance given by the mouth, in accomplishing the same object, and the restoration of the secretions generally. Weak brandy and water may be given occasionally during the collapse; and we have observed no injurious effect, in this or any stage of the disease, from the ordinary diluents taken in moderate quantities.

3. *Treatment of the Excited or Febrile Stage.* This division of the subject will not require such lengthened discussion as the preceding, which may be considered as more exclusively belonging to this disease; for recognised principles, applicable to the treatment of pyrexia in general, must be our guides in conducting this fever. The fever constituting this stage, be it in essence what it may, has inflammation accompanying it, of which the principal sites are the brain and the lining of the digestive canal; and to the subduing of these, by such measures as the state of the system admits, our attention should be carefully directed. A form of fever has been described as supervening on an extreme and long-continued collapse in the cold stage, and in which fever it was mentioned that the vascular action was low and feeble, the temperature of the surface under the healthy standard, and the distribution of warmth very partial. In this low form of disease, we have not ventured on general blood-letting: local bleeding from the temples has been freely performed, and occasionally, too, from the integuments of the abdomen, when there were any indications of inflammatory affection of the digestive canal; but the great degree of intellectual torpor and insensibility which attends these extreme cases, renders the discovery of such an affection extremely difficult. Blistering the nape of the neck, and shaving the head, so as to permit the application of cold, will be found very suitable measures. A degree of irritability of stomach, with occasional vomiting, is a very frequent accompaniment of such a case for the first two or three days; and, under such circumstances, leeches, and subsequently a blister to the epigastrium, have been resorted to with benefit. Of internal remedies, that on which most reliance is to be placed is calomel, from its effects on the secretions, particularly of the intestinal canal, and from its facilitating the action of the laxatives, which the state of the brain renders it advisable to administer. If two grains of calomel are given at intervals of three or four hours, an occasional gentle laxative, such as castor oil or calcined magnesia, will generally produce two or three bilious discharges from the bowels. Simultaneously with the administration of these remedies, the imperfect developement of heat, and its partial distribution, require attention. The patient should be placed near a stove, or in some warm situation, and bottles of hot water, or hot flannels, should be applied to the feet, or other parts which are chilled. Even whilst endeavoring, by local depletion, to relieve partial determinations of blood, the general state of the system has been such as to require a little stimulus; and wine and water has been given, especially at an advanced stage of the disease, and occasionally medicinal stimulants, such as carbonate of ammonia, camphor, and sometimes, as a tonic, sulphate of quinine; but we cannot say that much benefit has resulted from the latter class of agents. Such is the treatment we have generally adopted in that form of the febrile stage which is distinguishable from any fever we have been in the habit of observing here or elsewhere. The more excited form admits of one general bleeding with advantage, the amount of blood drawn being regulated by the degree of vascular action, of headache, of injection of the eyes, and various circumstances which would influence our proceeding in any ordinary fever. Should the head, as it generally does, continue affected after the blood-letting, the application of leeches and cold should be resorted to, the former being repeated, if necessary, to such extent, and at such intervals, as the degree of headache, intellectual torpor and vascular excitement may seem to require. Laxative medicine should be administered; and the purpose is exceedingly well answered by calomel, in doses of four or five grains nightly, and six drachms or an ounce of castor oil every morning. The diet, under such circumstances, should consist of the mildest and simplest diluents, such as would be demanded in any case of inflammatory fever. After the case has subsisted some days, a little wine and water may be given, if exhaustion be manifest; but it should not be continued beyond the necessities of the case. Though we have seen few or no cases without a de-

gree of cerebral affection, examples are met with in which the disorder of the intestinal canal is more considerable than that of the brain. Diarrhœa, the discharges being deeply bilious; a red, glazed, and very dry tongue; some degree of fulness and tension of the abdomen, and of pain on pressure there; and scanty, high-colored urine, generally attend such cases. The general treatment of cases in which such an affection exists, must depend on the state of the system; but the intestinal disorder demands the free application of leeches to the parietes of the abdomen, repeated according to circumstances, and the internal exhibition of mild mercurials, such as hydrargyrum cum cretâ, or blue pill, with a small quantity of opium. That kind of permanent fomentation which is afforded by hot poultices to the abdomen, after the application of leeches, has been found beneficial. The diet throughout a case in which this inflammation of the mucous lining of the intestines exists, should be mild and demulcent. In cases of this description—indeed, in the most excited as well as in the lowest forms of the disease in which the collapse of the cold seems prolonged through the febrile stage—it is advisable to counteract, by warmth to the extremities and other points, that tendency to irregular distribution of blood which forms so striking a feature of the disease. Cases are occasionally met with, so mild in all their stages, that the fever requires no medical treatment but a few leeches to the head, a little laxative medicine, and abstemious diet for a few days. Convalescence is in many cases tedious, the strength being slowly restored, and slight irregularities of diet sufficing to disorder the system, and even to produce relapse. For weeks after the fever, we have found the patient still languid, and exceedingly prone to irregular distribution of blood, especially to undue determination to the head, inducing headache (requiring the application of leeches) on any considerable exertion. To prevent such occurrences, we have found it advisable that the diet should consist, in the early period of convalescence, of a moderate quantity of vegetable matter only, and that the transition to more abundant and substantial food should be very gradual; in short, that convalescence from this disease should be conducted in the same manner as that from other fevers. We have stated that relapse may be produced by dietetic irregularities; and it is important to observe that even the best directed treatment of the incipient or diarrhœal stage may fail in its object, that of cutting short the disease, if such irregularities are indulged in. The relapses, properly so called, have occurred at an early period of convalescence; but we have witnessed one example, and that a very severe one, of the recurrence of epidemic choleric fever after an interval of two months from the preceding attack. This we were disposed to consider rather as an example of a second invasion than one of relapse, though it is proper to remark that the patient had remained feeble from the period of the previous disease. No assignable cause existed for the second attack.

Character of the Epidemic as it appeared in North America in 1832. This portion of our article must be unavoidably imperfect; for the cholera has not yet finished its course in this quarter of the globe, although it has proceeded here with unexampled rapidity. We know, in general, from the newspapers, that, in the months of October and November, it was sweeping down the valley of the Mississippi, and that, at Cincinnati and New Orleans, it was remarkably indiscriminate in its attacks and malignant in character; but from neither of those places have any such returns reached us as to furnish an accurate account of the mode of its appearance, the amount of its ravages, or the peculiarities it presented. The following brief notice, therefore, is founded on observations in relation to the disease as it appeared in Canada and in the north-eastern and middle parts of the U. States; and our remarks on the season, and previous diseases, and on the phenomena of the pestilence itself, unless specially referred to some particular place, are intended to apply to the whole extent of territory thus indicated.—The appearance of cholera on the American side of the Atlantic was an event in its history which promised to furnish a better opportunity for determining the manner of its propagation and progress than had been presented at any previous step in its destructive career. Our distance from the places it had hitherto visited, the maritime nature of all our intercourse with them, and the awakened vigilance of physicians and health officers at every point of the coast, seemed to justify the expectation that, whenever or wherever it should first appear, the manner of its coming might be established beyond any reasonable doubt. Accordingly it was looked for, on all hands, with scientific curiosity as well as universal dread. Some supposed that the cause of the disease would be wafted to our shores by the long course of easterly winds, which prevailed to an unusual degree during the spring and early part of the summer of the year 1832; others, that some infected ship would be the bearer of the unwelcome influence, either pent up with the atmosphere in her hold, or enveloped in bales of merchandise, or lurking in the system of some of her passengers. But many more, remembering that the course of great epidemics has always been from east to west, having watched the progress of cholera in Europe, and noticed the analogy it presented, in this respect, to some familiar epidemics, thought it more rational to expect, that the same meteorological intemperament which had produced it in other parts of the globe, would also be present here, and, under favorable circumstances, manifest itself in the same way. The first recognised case of the disease in America, occurred on the eighth of June, 1832, at Quebec, the capital of Lower Canada; and, whatever may be thought of the last-named explanation of the event, it is quite certain that the facts and circumstances attending it, which were carefully investigated at the time, give no countenance to either of the others; for, although the first subjects were emigrants, they had come over in healthy vessels, and had been exposed to no source of infection other than the filthy and crowded condition of their residence, which is stated, by the board of health, to have been "a low, uncleanly and ill-ventilated part of the city, crowded with a population of emigrants of the lowest description." A considerable number of the first cases were among the passengers of a steam-boat which started for Montreal on the day before the eruption of the disease, but who were relanded, after suffering greatly from fatigue, wet, agitation and alarm, in consequence of encountering boisterous weather, which compelled the boat to return. After landing about 200 of these exhausted passengers, she resumed her voyage; and, on her arrival at Montreal the next day, one of those who remained on board sickened, and became the first victim of the destroyer in that city. From the two capitals, the disease spread itself irregularly, but rapidly, over the respective provinces; and, in the course of twenty days, it had made its appearance, with more or less malignity, in most of the principal towns, and, sometimes, in the intervening open country, throughout a territory from 500 to 600 miles square. The visitation of the epidemic was unusually protracted and destructive in the Canadian capitals, and was more severely felt by the native French inhabitants than by any other class of their mixed population. In both places it reached its height in about ten days after its commencement, when it began to decline, but not regularly. At Quebec, about the eighteenth, the number of cases was estimated at from 250 to 300 in twenty-four hours. At Montreal, the largest number of cases in a day was 474, and of burials 149. The whole number of deaths in Quebec, from June 8 to September 1, is estimated at 2218; at Montreal, for the same time, 1843. Without having established itself at any intermediate spot between Canada and New York, it appeared in that city about the last of June. On the twenty-seventh of that month, two cases occurred in children of the same family, which terminated fatally, and which were identified as cholera. On the same day, an adult, who lived two miles from the habitation of the children, was seized with the same disease, and died in twenty-four hours. The mother of the children was attacked the day after they died, and became the fourth victim, on the twenty-ninth. On the thirtieth, a temperate man, living on the other side of the city, was seized, and died the next day, having had no communication with either of the other subjects. By the fourth of July, cases had occurred in various places on both sides of the city. They continued to multiply daily; and all efforts to trace any of them to any foreign source have been wholly unsuccessful. In about three weeks from its commencement, the disease was at its height, when the attacks, as nearly as could be ascertained, amounted to about 311 daily, and the deaths to 115. On the twenty-ninth of August, the board of health discontinued daily reports, when it appeared that the total number of cases was 5835, and the total of deaths, 2521. In the mean time, the citizens had become greatly alarmed, business was suspended, and a large portion of the inhabitants left the city. During the month of July, scattering cases occurred at various places in the state of New York, at Burlington in Vermont, at Detroit in Michigan territory, at Pittsburgh in Pennsylvania, at Newark in New Jersey, at Providence in Rhode Island, at New Haven in Connecticut, at Brookfield in Massachusetts; but in none of these places did the disease establish itself as an epidemic, and, in most cases, appeared only in some transient persons who were refugees from New York or Canada. In Philadelphia, the first cases recognised by the board of health, occurred on the sixteenth of July. There were then five cases reported, all in different, and, in some instances, in far distant streets. The disease was at its height here on the ninth day, when the number of cases, for twenty-four hours, was 176, and the deaths 71; total number of cases previous to September 1, was 2192, and 747 deaths. In Boston, the first cases occurred on the fifteenth of August, and were very unequivocal examples of cholera. For a week or two previous, the city was deemed uncommonly healthy, and there were very few deaths. There were, however, many mild cases of bowel complaints. On the night of the fifth, a very remarkable eruption of disease took place at the state prison in Charlestown, about a mile and a half from the centre of the city of Boston. This disease, if named at all, must be called *cholerine*. It could not be satisfactorily attributed to any error of diet, or peculiarity in the regimen of the convicts. In the course of twenty-four hours, 118 were attacked; but they received prompt attention, and none of them died. There were two cases on the first day that cholera was reported in the city, and both of them clearly spontaneous. Nine days intervening, the third case appeared, in a boy living remote from the localities of the two first. After another interval of six days, a fourth case was discovered, in another quarter of the city. Instances of the disease continued to present themselves, after longer or shorter intervals, until the first of December. The largest number of cases in any one day was six; and this was on the first of September. It was generally intense and malignant in its manifestations here; and a large proportion of the cases were fatal. The total of deaths in Boston, including those at the house of industry, was 85.—For several months before the appearance of cholera on our continent, the phenomena characterizing the seasons had manifested remarkable deviations from their accustomed course and character. The winter had been uncommonly severe and protracted; and the poorer classes of the population, in Canada as well as in some parts of the U. States, had suffered extremely from the exposure and privations which always await them during that inclement portion of the year. The cold weather continued through the spring months; and it is stated that stoves were found to be very comfortable, at Quebec, so late as the fourth of June, when the thermometer was as low as 40°. It appears, from tables accompanying the health officers' return, that the mean temperature in that city, during the month of April, was 38°, in May, 45⅔°, and in June, 58⅔°. It further appears from these tables, and from meteorological observations made by the medical society in New York, that, at both these places, and probably throughout a considerable extent of country around and between them, the season exhibited other deviations from its usual character, not less remarkable than those noticed in the temperature. The barometrical pressure, taking the average of several months immediately preceding June, was very great, but, in the course of that time, manifested variations which were extraordinary both for their suddenness and extent. In the month of November, for instance, it was very low, generally a little below 30, and, in one instance, sinking to 29.10. Between the tenth and seventeenth of December, it fell from 30.43 to 29.38, making a difference of 1.05 inch. In February, on the other hand, the barometer rose higher than the observers had ever noticed it. On the twenty-fourth of that month, it indicated 30.74 inches, and the mean pressure was 30.205 inches. Easterly winds were unusually prevalent, especially in April and May; and, throughout these months and the first of the summer, there were rather more clear days than common. The spring of 1832 was not less remarkable for its dryness, which coöperated with the cold in occasioning one of the most backward seasons within the recollection of the oldest observers. In January, 4.36 inches of rain fell, according to the New York observers, in February 2.30, in March but 1.78 inch, in April 4.46 inches, in May 4.53, and in June but .90. These unfavorable conditions of the season, besides the direct agency they may be supposed to have exerted on the health of the population, retarded the progress of vegetation, so that the early vegetables and fruits were either wholly denied to their customary consumers, or offered to them only in an immature and unwholesome state; and thus, perhaps, the cold and dryness of the spring furnished the most common exciting causes of that disease, which, by some other process, in combination with other meteorological influences, they had contributed to originate and render epidemic. There were no electrical phenomena either in January or February. They were manifested once in March, and none were observed afterwards till the eleventh of June. The diseases of the period we are contemplating, appear to furnish evidence of a new and peculiar state of the atmosphere. They were generally epidemics. Influenza began to prevail in the last quarter of 1831, and continued into the spring of the succeeding year. In many places, it was unusually malignant and destructive; and, in some, the physicians found it attended with an unwonted irritability of the stomach and bowels, that interdicted the employment of antimonial medicines, which were indicated by the affection of the lungs. Scarlatina and measles were rife at the same time, especially in the spring; and it was not among the least curious anomalies of the season, that, in many places, these two diseases were coexistent as distinct and remarkable epidemics. But no phenomenon of this kind, preceding the cholera, was so interesting and portentous to medical observers as the unseasonable appearance of milder forms of bowel complaints, which are regarded by many as nearly akin to that formidable disease. Sporadic cases of cholera morbus and dysentery were reported from various parts of the country, in the course of the winter and spring, and some very severe ones occurred in Canada, in April and May, along with the universal tendency to diarrhœa which there and elsewhere was the precursor and attendant of the pestilence. These facts were particularly noticed at St. John's, where a patient died in April, from an attack of cholera morbus, which exhibited the same characters as the epidemic that ensued. At Montreal, another death was recorded, attended with the same symptoms, on the twenty-eighth of May. We shall attempt to generalize the most important facts and most generally-received opinions respecting cholera in America, under several distinct heads, which will comprehend all that should be expected in such a notice as we have proposed to give.

1. *Epidemic Cholera was indigenous in America.* The evidence of this is to be found in the failure of all investigations, instituted in places where it has prevailed, to trace it to any foreign origin, not less than in the peculiarities in the season, and diseases that preceded it, which we have already noticed. The opinion of the medical profession on this point, in its most important practical bearing, may be known from the following reply to a question proposed by the mayor of New York to the special medical council of that city:—"No quarantine regulations hitherto employed, or known to us, have been, or are likely to be, effectual in excluding the malignant cholera from any populous town or village upon this continent." This opinion, having been transmitted to Boston, Philadelphia and Albany, received the concurrence and signatures of the public medical authorities in each of those cities, and of most other physicians to whom they were submitted. Nevertheless, on the general question touching the propagation of the disease, there is considerable difference of opinion among American physicians. Some suppose, for example, that, although it may arise spontaneously, it may, by accumulation, acquire the property of being transmitted to healthy persons and places by genuine infection; while others, and by far the largest portion, and especially those who have had the best opportunities for practical acquaintance with the subject, find a more satisfactory explanation of the facts on which this supposition is founded, either in the common exposure of the parties to local or exciting causes of the disease, or in some personal aptitude to become affected by the general cause, on the part of the individuals to whom the disease is supposed to have been communicated. Instances of this alleged contagion, especially among physicians, nurses, and other attendants on the sick, have been much less frequent, however, in this country than in England, and some other parts of Europe; American cholera, in this particular, as in some others, more nearly resembling the original Asiatic disease, than its congener in Europe.

2. *The Symptoms and essential Phenomena of the Disease were the same in America as in Great Britain.* We refer, therefore, to the previous pages for a description of the time and manner of its attacks, the succession and duration of its stages, and the symptoms characterizing each. The resemblance was not, indeed, complete at all places and times; but we have not remarked any differences sufficiently general to denote a geographical modification of the disease. The same is true of the structural changes which have been revealed by *post mortem* examinations in England and America. We think, however, that the symptoms of asphyxia came on without the usual introductory phenomena, in a larger proportion of cases here than in Great Britain.

3. *As to the Proximate Cause or Pathological Inception of Cholera*, similar diversities of opinion prevail, among the physicians in this country, to those we have already noticed among the profession in other parts of the world. Some suppose the unknown poisonous influence to make its first morbid impression on the mucous membrane of the stomach and bowels; others, that the nervous texture, in general, or the ganglionic system, specially, is the first to feel its baleful operation; others, that a failure of the active powers of the heart and blood-vessels takes the lead in this unmanageable train of morbid actions; others, that the fluid they contain, becoming decomposed or deteriorated, occasions all the formidable symptoms of the disease; and, lastly, there are those who believe that the proximate cause of cholera asphyxia consists in a simultaneous modification of all the organic powers and functions, the poison acting either directly on the properties of the several textures, or indirectly through the nervous system. Which of these speculations has the advantage, either in the number or respectability of those who entertain it, we are unable to determine.

CHOROIDES. (See *Eye.*)

CHRISTIANS OF ST. JOHN. (See *Sabians.*)

CHRYSOLITE. (See *Olivine.*)

CHRYSOPRASE. (See *Quartz.*)

CIMBRICA. (See *Jutland.*)

CIRRUS. (See *Clouds.*)

CIVIDAD. (See *Ciudad.*)

CLARKE, Adam, an eminent preacher of the Methodist persuasion, and a distinguished Oriental scholar, was a native of Ireland, though his father was an Englishman and his mother a Scotch woman. The place of his nativity was near the city of Londonderry, and the year of his birth, 1763. His early tuition was left in the hands of his mother, from whose early instructions he imbibed a spirit of piety and religion which marked the rest of his life. His first classical instructions were received from his father, who, although well qualified to give his sons a sound and mature education, was prevented from doing it, partly in consequence of his own occupations as a farmer, and partly because his circumstances obliged him to train them for trade, rather than for any of the learned professions. Young Clarke was, therefore, placed under the care of a linen manufacturer, but soon after separated from him, and, under the direction of Wesley, entered upon the office of preacher. He had already distinguished himself by preaching to the poor in the neighboring villages, when he was transferred to the institution, established by Wesley at Kingswood, in Yorkshire, for the education of those whose superior talents and zeal rendered it desirable to remove them entirely from business, and devote them to the ministerial work. On his first arrival at Kingswood, young Clarke was subjected to harsh and violent treatment on the part of the master; but he applied himself, with unbroken resolution, to the acquisition of even more learning than the system and resources of the seminary contemplated, and laid the foundation for that profound and philosophical acquaintance with the Hebrew language, for which he has been since so much distinguished. Wesley, who perceived and appreciated all the excellence of the young student, soon relieved him from his unpleasant situation, and appointed him one of the circuit or travelling preachers, when he was but just eighteen. As a preacher, Mr. Clarke was in the highest degree successful; and he attracted vast numbers wherever he appeared. Nor did he escape the insults and violence, with which, to the disgrace of that country, the early preachers of Methodism were too often treated in England. "In most places where he was stationed," says a writer in the Imperial Magazine, "his preaching formed an era in the history of Methodism; and no other man has ever yet appeared among its numerous preachers, to whose labors it is so much indebted for the respectability it has acquired, and the increase of its congregations. In many places, the chapels have been so thronged with hearers at an early hour, when he was expected to preach, that, on his arrival, all access from the door to the pulpit has been rendered impossible. This tide of popularity, with scarcely any intermission, has now followed him about forty years; and it remains unabated to the present day."—Notwithstanding his incessant avocations as a Christian minister, doctor Clarke was one of the most learned men of his time in England. But, even while prosecuting his profoundest literary researches, he never neglected his ministerial duties. By rising early, and taking late rest, avoiding all visits of ceremony and pleasure, and practising the strictest temperance in his diet, he made all his hours not occupied with those duties, hours of study and acquisition. His principal works are the Bibliographical Dictionary (6 vols., 1802—1804); the Bibliographical Miscellany, intended as a Supplement to the Bibliographical Dictionary (2 vols., 1806); and particularly his Holy Bible, with a Commentary and critical Notes (3 vols., 4to., 1810), which has been often republished. Doctor Clarke died in August, 1832. In figure, he was tall and commanding. His voice had more strength than melody. His style is copious, though not elegant, and his manner was impressive, though not animated. As a preacher, he aimed to convince rather than to excite; and as an author, to edify rather than to delight. As a commentator, he displays great erudition, and, though fanciful, is highly instructive. On account of his biblical learning and scientific acquirements, he obtained a diploma of LL. D., and honorary degrees from various scientific societies.

Clarke, Duke of Feltre. (See *Feltre.*)

Clarkson, Thomas, was born in the year 1761, and had his education at Cambridge (at St. John's college), where he obtained several prizes. When a prize was proposed for the best essay on the question "Is it just to make men slaves against their will?" Mr. Clarkson composed one in Latin, and obtained the first prize for the year 1785. His first publication was a translation of this under the title of an Essay on the Slavery and Commerce of the Human Species, particularly the African (1786). This was, perhaps, the first effectual step taken towards the suppression of the African slave-trade. It seems to have stimulated him to those unparalleled exertions which so materially contributed to that great triumph of humanity, the act of abolition. Warmed by his own work, joined to the writings of Benezet, and to the information he otherwise attained, he became a perfect enthusiast on this subject. He gave up his professional pursuits, although he had already been admitted into deacon's orders in the church, and resolved to devote his whole time to this great object. He therefore first connected himself with Mr. Wilberforce and other members of parliament known for their philanthropy, and, in 1787, formed a small society to effect the abolition of the commerce in African slaves. The next year, he published a work On the Impolicy of the African Slave-Trade, and, in 1789, another work On the comparative Efficacy of the Regulation or Abolition as applied to the African Slave-Trade. He then visited Bristol, Liverpool and Manchester, where, as he made no secret of his business, he met with many insults from persons concerned in the trade. After his return, he had interviews with Mr. Pitt, who seemed to approve of his zeal, but who did not support him as he ought. This humane cause found many advocates in Great Britain, in Germany, and in France; and Mr. Clarkson, to influence the privy council in the cause, produced before them a box full of various articles, the produce of Africa, to prove that that country was capable of furnishing objects of commerce of an innocent and valuable nature. In the mean time, Mr. Clarkson published, with a view to forward his great design, Letters on the Slave-Trade, and the State of the Nations in those Parts of Africa contiguous to Fort Louis and Goree (1791), and Three Letters to the Planters and Slave Merchants (1807). At one time, Mr. Clarkson had sanguine hopes of procuring an abolition much before he attained it, as the minister appeared favorable, and the friends of the abolition were much increased; but the opposite party, on a motion, in the house of commons, that an abolition of the slave-trade was necessary, had the address to get Mr. Dundas to introduce the word *gradual* into the motion, and by that means, for a time, defeated the measure. At last the government came into the hands of Mr. Fox and other real friends of the abolition; and the acts of parliament for that great purpose passed with the most triumphant majorities. Mr. Clarkson's labors in this good work being now finished, he had leisure for literary pursuits; and, in 1807, he published a Portraiture of Quakerism, in which he describes that respectable and singular people in their true colors, neither supporting their errors nor reflecting on their peculiarities. He has also published Memoirs of the public and private Life of John Penn. In 1808, he published, in two volumes, octavo, the History of the Abolition of the Slave-Trade. Among the Quakers he found the greatest disposition to second his zeal; and many of that sect have emancipated their slaves in various parts of the world.

Coach-Whip Snake. (See *Serpent.*)

Cold. (See *Freezing*, and *Temperature.*)

Collared Snake. (See *Serpent.*)

Colombo, American. (See *Frasera Caroliniensis.*)

Colophonite. (See *Garnet.*)

Colosvar. (See *Clausenburg.*)

Complexion. The human skin, till

the time of Malpighi, was supposed to consist only of two parts—the cuticle, epidermis or scarf-skin, and the cutis or real skin; but that anatomist, about the middle of the seventeenth century, discovered between these a cellular texture, soft and gelatinous, to which the names of *rete mucosum* and *corpus reticulare* have been given. He demonstrated the existence of this membrane, at first in the tongue, and in the inner parts of the hands and feet; but, by his subsequent labors, and also by those of Ruysch and other anatomists, it has been proved to exist, between the epidermis and cutis, in all parts of the human body. Malpighi, on the discovery of this membrane, offered a conjecture respecting the cause of the color of negroes. He supposed that this membrane contained a juice or fluid of a black color, from which their blackness arose. The actual existence of a black pigment has been since ascertained, but has never been procured in sufficient quantity to admit of minute and analytical examination. The *rete mucosum* is of very different colors in different nations; and the difference of its color so completely agrees with the difference of their complexions, that there can be no doubt that it is the sole, or, at least, the principal, seat of the color of the human complexion. Its thickness varies in different parts of the body; and the depth of its color, for the most part, is in proportion to its thickness. The black color of the negroes is destroyed by several causes; indeed, whatever destroys the *rete mocosum* destroys it, as wounds, burns, &c.; and, as this membrane is never reproduced, the scar remains white ever afterwards. Hawkins (in his Travels into the Interior of Africa, p. 120) mentions that the land-cloud of Africa, called, by the Portuguese, *ferrino*, changes the black color of the negroes into a dusky gray; according to some other authors, the change is into a red copper color. At Darfur, a species of leprosy prevails among the natives, which they call *borras*, and which gives them the appearance of being piebald, changing to a white color parts both of their skin and their hair. There are, also, several instances of the color of negroes being either entirely or partially changed, from the operation of causes which cannot be detected or explained. A boy, who was born in Virginia, of black parents, continued of his native color till he was three years old: at that period, a change of color began to take place, though the health of the boy continued good, and there was no assignable cause for the alteration in his food or mode of life. At first, white specks made their appearance on his neck and breast, which soon increased in number and size; from the upper part of his neck down to his knees, he was completely dappled; his hair was also changed, but not to the same degree, since, though some parts of it were white, in general it retained the black color and crispature of the negro. The color of those parts of his body which had undergone the change was of a more livid white than is found among the fairest Europeans; nor did the flesh and blood appear through these parts of his skin so clear and lively as through the skin of white people. He was not liable to be tanned.—*Philosophical Transactions* (vol. xix, p. 781). (For the classification of the varieties of the human complexion, see the article *Man.*)—The nature and color of the hair seem closely connected with the complexion. In proportion to the thinness of the skin, and the fairness of the complexion, the hair is soft, fine, and of a white color: this observation holds good, not only in the great varieties of the human race, but also in the Albinos. Next to them, in fairness of complexion, is the Gothic race, the *rutilæ comæ* of whom were a distinguishing characteristic, even in the time of the Romans. The Celtic tribes are not so fair as the Gothic, and their hair is darker and more inclined to curl; so that the observation which Tacitus makes respecting the Silures still applies to them—*Colorati vultus, torti crines.* But, though the color of the hair is evidently connected with the complexion, yet its tendency to curl does not appear to be so. The brown-complexioned Celts have curled hair; the Mongolian and American varieties, of a much darker complexion, have hair of a darker color, but long and straight. Among that portion of the Malay variety which inhabits the South sea islands, soft and curled hair is frequently met with. The color of the eye is also connected with the complexion. In the Africans, professor Sőmmering remarks that the *tunica adnata*, or white of the eye, is not so resplendently white as in Europeans, but rather of a yellowish-brown, something similar to what occurs in the jaundice. The iris, in the negroes in general, is of a very dark color; but, according to Pigafetta, the iris in the Congo negro is frequently of a bluish tinge; and it is worthy of remark that, according to this author, these negroes have not the thick lips of the Nubians. The Gothic tribes are not more distinguished by their fair complexion than by their blue eyes (*cærulei oculi*), while the iris of the darker colored Finn, according to Linnæus, is brown, and that of the still darker Laplander, black. The color of the eyes also follows, in a great degree, in its changes, the variations produced by age in the complexion. Blumenbach informs us that newly-born children, in Germany, have, generally, blue eyes and light hair, both of which become gradually of a darker hue, as the complexion of the individual grows darker; and Ligon, in his True and Exact History of Barbadoes (p. 52), says that the children of the negroes there, when they are born, "have the sight of their eyes of a bluish color, not unlike the eyes of a young kitten; but, as they grow older, they become black." The most singular race of men, in point of complexion, are the Albinos. (See *Albinos.*) A middle complexion is produced where children are born from parents of different races. If the offspring of the darkest African and the fairest European intermarry successively with Europeans, in the fourth generation they become white: when the circumstances are reversed, the result is reversed also. Along with the successive changes of complexion is also produced a change in the nature and color of the hair; though, in some instances, the woolly hair remains when the complexion has become nearly as fair as that of brown people in Europe. It does not, however, always happen that the offspring is the intermediate color between that of the respective races to which the father and mother belong; it sometimes resembles one parent only, while, perhaps, in the second or third generation, the color of the other parent makes its appearance. White, On the Regular Gradation of Man, mentions a negress who had twins by an Englishman: one was perfectly black; its hair was short, woolly and curled: the other was white, with hair resembling that of an European. And Parsons, in the Philosophical Transactions, gives an account of a black man who married an English woman: the child, the offspring of this marriage, was quite black. The same author gives another instance, still more remarkable: a black, in Gray's inn, married a white woman, who bore him a daughter resembling the mother in features, and as fair in all respects, except that the right buttock and thigh were as black as the father's.—*Philosophical Transactions* (vol. i, p. 45).—The generally-received opinion, concerning the varieties of complexion, which are found in the different races of man throughout the globe, is, that they are caused entirely by the influence of climate. Respecting the primary color of man, the supporters of this opinion are not agreed. The opinion that climate alone will account for the various complexions of mankind is very plausible, and supported by the well-known facts, that in Europe the complexion grows darker as the climate becomes warmer; that the complexion of the French is darker than that of the Germans, while the natives of the south of France and Germany are darker than those of the north; that the Italians and Spaniards are darker than the French, and the natives of the south of Italy and Spain darker than those in the north. The complexion, also, of the people of Africa and the East Indies is brought forward in support of this opinion; and from these, and similar facts, the broad and general conclusion is drawn, that the complexion varies in darkness as the heat of the climate increases; and that, therefore, climate alone has produced this variety. But it can be shown that the exceptions to this general rule are very numerous; that people of dark complexions are found in the coldest climates, people of fair complexions in warm climates, people of the same complexion throughout a great diversity of climate, and races differing materially in complexion among the same people. 1. In the coldest climates of Europe, Asia and America, we find races of a very dark complexion. The Laplanders have short, black, coarse hair; their skins are swarthy, and the irides of their eyes are black. According to Crantz, the Greenlanders have small, black eyes; their body is dark-gray all over; their face brown or olive; and their hair coal black.—Crantz's *History of Greenland* (i, 132).—The complexion of the Samoides, and the other tribes who inhabit the north of Asia, and of the Esquimaux, is very similar to that of the Laplanders and Greenlanders. Humboldt's observations on the South American Indians illustrate and confirm the same fact. If climate rendered the complexion of such of these Indians as live under the torrid zone, in the warm and sheltered valleys, of a dark hue, it ought, also, to render, or preserve fair, the complexion of such as inhabit the mountainous part of that country; for, certainly, in point of climate, there must be as much difference between the heat of the valleys and of the mountains in South America as there is between the temperature of southern and northern Europe; and yet this author expressly assures us, "that the Indians of the torrid zone, who inhabit the most elevated plains of the Cordillera of the Andes, and those who, under the forty-fifth degree of south latitude, live by fishing among the islands of the archipelago of Chonos, have as coppery a complexion as those who, under a burning climate, cultivate bananas in the narrowest and deepest valleys of the equinoctial region.—*Political Essay on the Kingdom of New Spain* (i. 14, &c.).—He adds, indeed, that the Indians of the mountains are clothed, but he never could observe that those parts which were covered were less dark than those which were exposed to the air. The inhabitants, also, of Terra del Fuego, one of the coldest climates in the world, have dark complexions and hair. 2. Fair complexioned races are found in hot climates. Ulloa informs us that the heat of Guayaquil is greater than at Carthagena; and, by experiment, he ascertained the heat of the latter place to be greater than the heat of the hottest day at Paris; and yet, in Guayaquil, "notwithstanding the heat of the climate, its natives are not tawny:" indeed, they are "so fresh-colored, and so finely-featured, as justly to be styled the handsomest, both in the province of Quito, and even in all Peru."—*Ulloa* (i, 171).—"In the forests of Guiana, especially near the sources of the Orinoco, are several tribes of a whitish complexion,—the Guiacas, the Guagaribs, and Arigues,—of whom several robust individuals, exhibiting no symptom of the asthenical malady which characterizes Albinos, have the appearance of true Mestizos. Yet these tribes have never mingled with Europeans, and are surrounded with other tribes of a dark-brown hue." The inhabitants of Boroa, a tribe in the heart of Araucania, are white, and, in their features and complexion, very like Europeans. Even in Africa, darkness of complexion does not increase with the heat of the climate in all instances: the existence of comparatively fair races in this quarter of the globe is noticed by Ebn Haukal, an Arabian traveller of the tenth century, and has been confirmed by subsequent travellers. 3. The same complexion is found over immense tracts of country, comprehending all possible varieties of climate. The most striking and decisive instance of this is on the continent of America; all the inhabitants of which, with the exception of the Esquimaux, exhibit the copper-colored skin, and the long and straight black hair. New Holland is an instance of a similar nature, though on a less extensive scale: over the whole of the island, even in the very cold climate of the southern parts, the complexion of its inhabitants is of a deep black, and their hair is curled like that of negroes. 4. Different complexions are found under the same physical latitude, and among the same people. Illustrations and proofs of this have already been given. The physical latitude in which the Norwegians, the Icelanders, the Finns and the Laplanders live, scarcely differs; and yet their complexions, and the color of their eyes and hair, are widely different. There is a great diversity of color and features among the Morlachi, who inhabit Dalmatia. The inhabitants of Kotar, and of the plains of Seigu, and Knin, have fair blue eyes, broad face, and flat nose. Those of Duare and Vergoraz, on the contrary, have dark-colored hair; their face is long, their complexion tawny, and their stature tall.—Fortis's *Travels in Dalmatia* (p. 51).—M. Sauchez, who travelled among the Tartars in the southern provinces of Russia, describes a nation, called the Kabendedski, as having countenances as white and fresh as any in Europe, with large black eyes.—Smellie's *Philosophy of Natural History* (ii, p. 167).—The inhabitants in the neighborhood of the cape of Good Hope differ in their complexions much more than in the nature of the climate under which they respectively live. The Caffres are black; the Bushwanas of a bronze color; and the Hottentots a light brown, or brownish-yellow. In the island of Madagascar there are three races, distinctly marked. The first are black, with frizzled hair, supposed to be the original inhabitants of the island. The second race inhabit the interior provinces: they are tawny, and have long hair, like the Malays. The third race reside near Fort Daupliris, and on the west coast: they are supposed to be descended from some shipwrecked Arabs, and retain a resemblance to that nation.—Sonnerat's *Voyages to the East Indies and China* (translated from the French, iii. p. 30).—People with the negro complexion and features are also found in the interior of the Philippine islands; and in Java, the Hindoo and Malay character may be clearly traced in the complexion and features of the two classes of inhabitants which are found in that island. In several of the Moluccas is a race of men who are blacker than the rest, with woolly hair, inhabiting the interior hilly parts of the country. The shores of these islands are peopled by another nation, whose individuals are swarthy, with curled long hair. In the interior hilly parts of Formosa, the inhabitants are brown, frizzle-haired, and broad-faced, while the Chinese occupy the shores. Forster observes that there are two great varieties of people in the South seas; the one more fair, the other blacker, with their hair just beginning to be woolly and crisp. The first race inhabits Otaheite and the Society isles, the Marquesas, the Friendly isles, Easter island, and New Zealand; the second race peoples New Caledonia, Tanna, and the New Hebrides, especially Mallicolo. If we examine the relative situation and latitudes of these islands on a map, we shall be convinced, not only that darker complexioned people are found where the climate is comparatively colder, but that the same complexion is found under very different latitudes. It is not meant to be denied that a burning climate will render the complexion very dark, and that a climate of less extreme heat will bronze the complexion of the fairest European; but there are some material points, in which the dark complexion of the Caucasian, or naturally fair-skinned variety of mankind, caused by climate, differs from the dark complexion of all the other varieties of the human race. 1. The offspring of the Caucasian variety is born fair; the offspring of the other varieties is born of the respective complexion of their parents. Ulloa informs us that the children born in Guayaquil of Spanish parents are very fair.—*Ulloa* (i, 171).—The same is the case in the West Indies. Long, in his History of Jamaica, expressly affirms, "that the children born in England have not, in general, lovelier or more transparent skins than the offspring of white parents in Jamaica." But it may be urged, that this is not the case with respect to the other nations of the Caucasian variety, who have been settled in warm climates from time immemorial, and that the question ought to be decided by the Moors, Arabians, &c. Their children, however, are also born fair-complexioned, as fair as the children of Europeans, who live under a cold climate. Russell informs us that the inhabitants of the country round Aleppo are naturally of a fair complexion, and that women of condition, with proper care, preserve their fair complexion to the last. —Russell's *Aleppo* (i, 99).—The children of the Moors, according to Shaw, have the finest complexions of any nation whatsoever; and the testimony of Poiret is directly to the same effect:—"The Moors are not naturally black, but are born fair, and when not exposed to the heat of the sun, remain fair during their lives.—*Shaw* (p. 304); and Poiret's *Voyage en Barbarie* (i, 31).—2. Individuals belonging to the Caucasian variety, that inhabit warm countries, preserve their native fairness of complexion if they are not exposed to the influence of the climate; while there is a uniform black color over all the parts of a negro's body. The hue which Europeans assume is the same, though the tinge may be lighter or darker, whether they settle in Africa, the East Indies, or South America. They do not become, like the natives of those countries, black, olive-colored, or copper-colored: their complexion merely resembles that of a tanned person in this country, only of a darker tinge. The negroes that are settled in the West Indies, or America, do not assume the copper color of the Indians, even though a milder climate may have some effect on the darkness of their complexions. The children of Europeans, of negroes, and of Indians, are all born, in America, of the same reddish hue; but, in a few days, those of the negro begin to assume the black complexion of their parents, those of the Indian the copper complexion, while those of the European either continue fair, if kept from the influence of the sun, or become tanned; not black like the negro, or copper-colored like the Indian, if exposed to its influence. Europeans who settle in Canada, or in the northern parts of America, where the climate resembles that of their native country, do not assume the complexion of the Indians, but continue fair like their ancestors. The same observation may be made respecting the Russians, who are settled among the Mongolian variety, in those parts of the Russian empire in Asia the climate of which resembles the middle or northern parts of European Russia. Indeed, the wide extent of country over which the Mongolian variety is spread, including the extreme cold of Lapland, and the north of Asia, the mild temperature of the middle parts of that continent, and the warmth of the southern parts of China, is, in itself, a proof that dark complexion does not arise either from the influence of heat or cold.—Lastly, radical varieties of complexion are always accompanied with radical varieties of features. We do not find the olive color of the Mongolian variety with the features of the Malay; nor the brown color of the Malay with the features of the Mongolian; nor the black skin of the Ethiopian variety, or the red color of the American, united with any set of features but those which characterize their respective varieties. It, however, by no means follows that the hypothesis of different races having been originally formed, must be adopted, because climate is not adequate to the production of the radical varieties of complexion which are found among mankind. Man, as well as animals, has a propensity to form natural varieties.

Condé, Louis Henry Joseph de Bourbon, duke of Bourbon and prince of Condé, of whom we have given an account under the head *Condé*, put an end to his own life at his château of St. Leu, Aug. 27, 1830. He is supposed to have committed this act while laboring under derangement produced by the revolution which had just taken place, and had promised to repair to Paris to take the oath to the new government, on the morning when he was found dead in his chamber, suspended by his own handkerchief. We have to add here an account of his will, and of the singular suit to which it gave rise. By this will, written with his own hand, and dated Aug. 30, 1829, his whole fortune passes to the duke d'Aumale, son of Louis Philippe, king of the French, and to Mrs. Dawes, baroness de Feuchères, an English woman with whom he lived. The legacies to this lady, including several châteaux and seats, were valued at about fifteen millions of francs, the residue of his fortune being left to the duke d'Aumale. This will was disputed by the princes of Rohan, on the ground that the baroness de Feuchères had used improper influence over the prince; and it was contended by their counsel that the prince had been murdered by persons interested. It was not till Feb. 22, 1832, that the judgment of the court was finally pronounced in favor of the duke d'Aumale and madame Feuchères.

Congelation. (See *Freezing*.)

Constant died at Paris, December 8, 1830.

Constantinople, Era of. (See *Epoch*.)

Consumption. (See *Pulmonary Consumption*.)

Convent. (See *Monastery*.)

Cony. (See *Jerboa*.)

Coolies. (See *Palanquin*.)

Coomassie. (See *Cummazee*.)

Copperhead. (See *Serpent*.)

Copyhold. (See *Tenure*.)

Corporations. (See *Guilds*.)

Correa da Serra. To what is said in the body of the work we add, that this statesman was Portuguese minister to the U. States from 1816 to 1819, when he was nominated member of the financial council. He returned to Lisbon by the way of London and Paris, and in 1823 was chosen deputy to the cortes. His death took place the same year. Correa da Serra was the author of many papers in the Transactions of the Royal Society of London, in the Transactions of the Philadelphia Philosophical Society, in the *Archives littéraires de l'Europe*, and the *Annales du Muséum d'Histoire naturelle*, in Paris.

Cosmic Rising. (See *Ortus Cosmicus*.)

Cotton-Tree. (See *Plane-Tree*.)

Cotton-Wood. (See *Poplar*.)

Cougar. (See *Puma*.)

Cow-Bird. (See *Oriole*.)

Coxen. (See *Cockswain*.)

Crabbe, George, died at Trowbridge, in February, 1832.

Craven, lady, died at Naples, in 1826.

Crichtonite. (See *Titanium*.)

Cross Stone. (See *Harmotome*.)

Crown Imperial. (See *Fritillaria*.)

Crucifixion; a mode of inflicting capital punishment, by affixing criminals to a wooden cross. This was a frequent punishment among the ancients, and practised by most of the nations whose history has reached our knowledge: it is now chiefly confined to the Mohammedans. There were different kinds of crosses, though it cannot be affirmed which was in general use; such as that most familiar to us, consisting of two beams at right angles, and St. Andrew's cross. It is necessary to observe, that the numerous and diversified crosses and crucifixes exhibited in sculpture and painting are entirely fictitious. These were gradually introduced, as the cross itself became an object of superstitious veneration, and when the devout conceived that their salvation was promoted by constantly introducing some allusion to it. Thus it became a universal emblem of piety among them; and crossing the legs of an effigy on a tomb-stone denoted that a Christian was interred below. On condemnation, the criminal, by aggravated barbarity, was scourged before suffering death; and perhaps this part of his punishment was scarcely inferior to the other.

The scourge was formed of cords armed with bits of lead or bone; or it consisted of simple rods of iron and wood, which latter were called *scorpions*, when covered with spines. While he suffered, he was bound to a column; and that where Christ underwent scourging, was still extant during the days of St. Jerome, in the fifth century. This being the common custom, and preceding not only crucifixion, but other kinds of capital punishment, it is an error to suppose that Pilate scourged Christ from motives of greater severity towards him. The criminal was compelled to carry his own cross to the place of execution, which was generally at some distance from the habitations of men. This is still the custom in several countries with respect to their capital punishments; and it is probable that inflicting these within the walls of cities was less frequent of old than it is now. A certain gate had its specific name from being the exit of criminals on the way to punishment. It was not the whole cross, according to some, which was borne by the offender, but only the transverse beam, or patibulum, because they suppose the upright part to have remained stationary in the ground, whereas the other was movable. The criminal, having reached the fatal spot, was stripped nearly naked, and affixed to the cross by an iron spike, driven through each hand and each foot, or through the wrists and ankles. Authors are, nevertheless, greatly divided concerning the number and position of the nails in ancient punishments; and it has been conjectured, that in the most simple crucifixion, whereby both hands were nailed above the criminal, and both feet below, all on one perpendicular post or tree, only two were used. The sounder opinion, and that which coincides with modern practice, bestows a nail on each member. That the weight of the body might be the better supported, the arms and legs were encircled by cords, an instance of which occurs in a crucifixion at Algiers, which is thus described by a spectator:—"The criminal was nailed to a ladder by iron spikes through his wrists and ankles, in a posture resembling St. Andrew's cross, and, as if apprehensive that the spikes would not hold from failure of his flesh, the executioners had bound his wrists and ankles with small cords to the ladder. Two days I saw him alive in this torture; and how much longer he lived I cannot tell." If, instead of being nailed to the cross, the criminal was bound to it by cords, it was designed as a more cruel punishment. The criminal, being fixed on the cross, was left to expire in anguish, and his body remained a prey to the birds of the air. His death, however, was not immediate, nor should it be so in general, considering that the vital organs may escape laceration. We learn from the distinct narrative of the evangelists, that conversations could be carried on among those who suffered, or between them and the by-standers; and Justin, the historian, relates, that Bomilcar, a Carthaginian leader, having been crucified, on an accusation of treason against the state, he bore the cruelty of his countrymen with distinguished fortitude, harangued them from the cross as from a tribunal, and reproached them with their ingratitude, before he expired. There are repeated instances of persons crucified having perished more from hunger than from the severity of the punishment. The Algerine before spoken of survived at least two days; St. Andrew lived two or three; and the martyrs Timotheus and Maura did not die during nine days. By the Mohammedan laws, certain delinquents are to be punished with crucifixion, and killed on the cross by thrusting a spear through their bodies; and here we find an example of what is narrated in Scripture, of a soldier piercing the side of Jesus Christ with a lance, though he was dead. Among the Jews, we may conclude, from the treatment of the two thieves crucified along with Christ, that it was customary to break the legs of criminals, but whether as a *coup de grace*, like the former, and resembling some modern European punishments, is not evident. It is denied by Lipsius to have been part of the punishment of crucifixion, or attached to it in particular; yet there are passages in Seneca and Pliny from which we might rather infer that the reverse was the case, at least with the Romans. Certainly it cannot be considered an effectual means of hastening death. We know, however, that there was a peculiar punishment of this description, and perhaps a capital one, called *crurifragium* by the ancients, inflicted on Roman slaves and Christian martyrs, as also on women or girls. Augustus ordered the legs of one to be broken who had given up a letter for a bribe; and Ammianus says, "Both the Apollinares, father and son, were killed, according to the sentence, by breaking their legs." Under the reign of Diocletian, twenty-three Christians suffered martyrdom in the same manner. The legs of the criminal were laid on an anvil, and by main force fractured with a heavy hammer, somewhat similar to the modern barbarous custom of breaking the bones of offenders on the wheel by an iron bar. From the narrative of the evangelists, we may conclude, that breaking the legs of the thieves was to promote their death, that they might be taken down the same day from the cross. That spectators might learn the cause of punishment, a label, or inscription, indicating the crime, frequently surmounted the head of the criminal. The offence charged against Jesus Christ, was having called himself king of the Jews. Accordingly, the inscription on his cross was, "This is Jesus, the king of the Jews." By our own customs, a label is sometimes hung from the neck of an offender condemned to lesser punishments, describing his guilt, which is meant to aggravate the ignominy. But among the Romans, this was perhaps also the warrant for putting the sentence in execution. That the object of crucifixion might be fulfilled in exposing the body of the criminal to decay, sentinels were commonly posted beside the cross, to prevent it from being taken down and buried. Privation of sepulture was dreaded as the greatest evil by the ancients, who believed that the soul could never rest or enjoy felicity so long as their mortal remains continued on the earth. Thus it was a great aggravation of the punishment. Besides these, the ordinary modes of inflicting the punishment of crucifixion, assuredly sufficiently cruel in themselves, mankind have sought the gratification of vengeance in deviating from them. Such was the conduct of the Roman soldiers, under Titus, at the siege of Jerusalem, where the miserable Jews were crucified in various postures by their sanguinary enemies. Seneca speaks of crucifixion with the head downwards; and of this we have a noted example in the history of St. Peter, during the first century of the Christian era. Having been seized by the Roman government, and condemned to die on the cross, it is said that he solicited, as a greater degradation, that he might be crucified with his head downwards. It appears that delinquents were sometimes affixed to the cross, and burnt or suffocated to death. With respect to the persons on whom this punishment was inflicted, we have seen that the Carthaginian leaders were not exempt from it; but elsewhere, especially among the Jews and Romans, only the lowest malefactors were condemned to the cross. It was peculiarly appropriated for slaves. The cross has been made a more terrible instrument of destruction to a vanquished enemy. Thus Alexander the Great, after putting eight or ten thousand Tyrians to the sword, on taking their city, crucified 2000 more along the shores. Not less sanguinary was the vengeance of the Romans against the Jews; Minutus Alexander crucified 800, and Quinctilius Varus 2000, on account of some revolt. Titus, whom we are wont to esteem as humane and merciful, crucified above 500 in a day; and at the sack of Jerusalem, under his command, the Romans, wherever they could seize the affrighted fugitives, either in hatred or derision, nailed them to crosses about the walls of the city, until the multitude was so great, that room was wanting for the crosses, and crosses for the bodies. Crucifixion has been considered the most cruel of punishments, and merited by the most atrocious offences only. That the pain of the cross is cruel cannot be denied; yet we are, perhaps, accustomed to exaggerate it. Examples are not wanting of persons having been taken down from the cross alive, and surviving the laceration of their members. Josephus, the historian, relates, that, on leaving a particular town in Judea, he saw a great many of the enemy crucified; but it grieved him much to recognise three of the number with whom he had been in intimate habits. He hastened to inform Titus of the fact, who immediately ordered them to be taken down, and their wounds carefully healed. Two, nevertheless, perished; but the third survived.

Cruor. (See *Blood.*)

Crystallization. (See *Cohesion.*)

Cubebs. (See *Pepper.*)

Cucumber-Tree. (See *Magnolia.*)

Cumulus. (See *Clouds.*)

Cuvier died at Paris, May 15, 1832.

Cuzco. (See *Cusco.*)

Cyanometer. (See *Heaven.*)

D.

Dahcotahs. (See *Indians, American.*)

Dalmatia, Duke of. (See *Soult.*)

Dark Ages. (See *Middle Ages.*)

Davy, sir Humphrey, died in 1831.

De Bay. (See *Baius.*)

Death, Apparent, was referred to from *Asphyxia*, for the treatment of persons in a state of suspended animation:

the process will be found described under *Drowning*.

Decigramme. (See *Gramme.*)

Demesne. (See *Domain.*)

Demurrer. (See *Issue.*)

Denys, St., Abbey of. (See *Denis.*)

Dertzhavin. (See *Derschawin.*)

Desiderada, or **Desirada.** (See *Deseada.*)

Dessoles died in 1828.

Deva-Nagara. (See *Sanscrit.*)

Diabetes is an affection of a very peculiar nature, and which, both with respect to its origin, its proximate cause, and its treatment, has given rise to much controversy. Its most remarkable symptoms are, a great increase in the quantity of urine, a voracious appetite, a stoppage of the cutaneous perspiration, thirst, emaciation, and great muscular debility. The urine is not only prodigiously increased in its quantity, but likewise has its composition completely changed; the substance named *urea*, which it contains in the healthy state, is entirely removed, or exists in very small proportion, while in its stead we find a large quantity of a body possessing the physical and chemical properties of sugar. Whether diabetic differs essentially from vegetable sugar, is to be regarded more as a chemical question, than as what, in any respect, influences either our pathology or our practice; and it has been a subject of controversy whether there be a proper diabetes *insipidus*, that is, a disease attended with the increased discharge of urine, the voracious appetite, and the morbid state of the skin, but where the urine does not contain sugar. There is much obscurity respecting the origin of diabetes: it has been attributed to improper diet, to the use of spirituous liquors; to large quantities of watery fluids; to exposure to cold during perspiration; to violent exercise; and, in short, to any thing which might be supposed likely to weaken the system generally, or the digestive organs in particular. It does not, however, appear that any of these circumstances so commonly precede the disease, as to entitle it to be regarded as the cause, although many of them may contribute to aggravate it, or to bring it into action, when the foundation is laid in the constitution. The proximate has been no less the subject of controversy than the exciting cause; and on this point two hypotheses have divided the opinions of pathologists: some have ascribed it to a primary affection of the stomach and the function of assimilation, and others to a primary disease of the kidney. With respect to the treatment which may afford the best chance of success, or which may possibly remove the complaint in its incipient state, we should recommend that a moderate bleeding be premised, and that a diet be employed, of which vegetable matter should form only a small proportion: at the same time we may administer vegetable tonics, and may endeavor to restore the natural action of the skin by diaphoretics and the warm bath.

Diarrhœa; a very common disease, which consists in an increased discharge from the alimentary canal, the evacuations being but little affected, except in their assuming a more liquid consistence. They are generally preceded or accompanied by flatulence, and a griping pain in the bowels, and frequently by sickness; but this should, perhaps, rather be attributed to the same cause which produces the diarrhœa, than be considered as a part of the disease itself. The symptoms of this complaint are so obvious as seldom to leave any doubt respecting its existence; but there are two diseases that resemble it, and from which it is important to distinguish it—dysentery and cholera. For the most part, an attention to the nature of the evacuations is sufficient to point out the distinction; or if, as occasionally happens, the diseases appear to run into each other, our remedies must be administered accordingly, always adapting them rather to the symptoms than to a technical nomenclature. The exciting causes of diarrhœa are various; perhaps the most frequent is repletion of the stomach, or the reception into it of some kind of indigestible food: cold applied to the surface of the body, and especially to the legs and feet, is also an exciting cause of diarrhœa; and it is occasionally produced by impressions upon the nervous system, or even by mere mental emotions. In children, the peculiar irritation produced by teething seems to be a frequent exciting cause of diarrhœa, as well as that which arises from the presence of worms in the alimentary canal. Diarrhœa is often symptomatic of some other disease: of these, one of the most violent is the colliquative discharge from the bowels, which occurs in the latter stages of hectic fever. It is also a frequent attendant or sequel of the affections of the liver that come on after a residence in hot climates, and is then found to be one of the most unmanageable symptoms of these diseases. In its simple form, diarrhœa is not difficult of cure, and, perhaps, in a great majority of cases, would be relieved by the mere efforts of nature. The proximate cause of diarrhœa appears to be an increase of the peristaltic motion of the intestines, which may depend either upon a stimulating substance applied to them, or upon an increased sensibility in the part, rendering it more easily affected by the ordinary stimuli. In cases of the first description, which constitute a great majority of those that fall under our observation, the most effectual remedies are mild purgatives, given in small doses, and frequently repeated. Along with the purgatives large quantities of mild diluents will be found serviceable; and the food should be of the least stimulating kind, and be composed as much as possible of liquids. The choice of the purgative will depend upon the state of the stomach, and various other circumstances: neutral salts, castor oil, rhubarb and magnesia, are, perhaps, among those that are the most generally applicable: the last will be especially proper when we have reason to suspect an acid state of the alimentary canal. After the due exhibition of purgatives, we shall generally find the complaint to subside without the use of any other remedies; and, by a proper regulation of the diet, the parts resume their healthy action. Considerable advantage has been gained by the use of warm clothing, and particularly of flannel worn next to the skin, in those who are subject to frequent attacks of diarrhœa; and sometimes it has appeared that the warm bath, or even the removal to a milder climate, has been of permanent utility.

Dickinson, Jonathan, first president of Nassau hall, the college of New Jersey, was born at Hatfield, Massachusetts, April 22, 1688, graduated at Yale college in 1706, and, a few years after, became the minister of the first Presbyterian church in Elizabethtown, New Jersey. In 1746, he was appointed president of the new college, but died Oct. 7, in the following year. His numerous theological writings are much esteemed.

Diocletian, Era of. (See *Epoch*.)

D'Israeli, Isaac, is the only son of an Italian merchant, of a Jewish family, who was long a resident in England. At a very early period of youth, he had a passion for reading, and even attempted to write little tales concerning giants and ghosts. But, though fond of reading, he was averse from regular study. He first went to an academy at Enfield, near his father's country-house; but there he learnt nothing more than a little imperfect Latin. Nor did he make much greater progress under several private masters. He was then sent over to a private seminary in Amsterdam. Young D'Israeli now applied himself ardently to study. In classical literature, however, he made no great progress; but he gained an intimate acquaintance with several modern languages, and with the authors who have written in them. At the end of two years, Mr. D'Israeli returned to his native country. He next made a tour in France and Italy, and returned with a valuable collection of books, and a confirmed predilection for French literature. While he was at Amsterdam, he first tried to write verse, and took Pope for his model. His earliest effort in England appears to have been a Poetical Epistle on the Abuse of Satire, which was an attack on Peter Pindar (printed in the 59th volume of the Gentleman's Magazine). In 1791, he published a poem, entitled a Defence of Poetry, which was addressed to the poet laureate. It was an animated composition; but, when only a few copies were sold, Mr. D'Israeli destroyed the whole edition. His next work was the first volume of the Curiosities of Literature (1791), a selection made with taste and judgment, and which was so well received that he prefixed his name to the second volume (1793). The work has since passed through several editions. The seventh edition, published in 1824, forms five octavo volumes. Since that publication, he has constantly appeared in the character of a writer, with success. His works display extensive reading, a lively fancy, and a pleasant wit, and are written in a flowing and spirited style. The following is a list of them, in their order of publication:—a Dissertation on Anecdotes (1793); Essay on the Manners and Genius of the Literary Character (1795); Miscellanies, or Literary Recreations (1796); Vaurien, a Satirical Novel (2 vols., 1797); Romances (1798); Narrative Poems (1803); Despotism, or the Fall of the Jesuits, a novel (2 vols.); Flim Flams, or Life of my Uncle, a kind of satirical biography (3 vols.); Calamities of Authors, including some Inquiries respecting their Moral and Literary Characters (1812—13, 2 vols., 8vo.); Quarrels of Authors, or some Memoirs for our Literary History, including Specimens of Controversy, to the Reign of Elizabeth (1814, 3 vols., 8vo.); a new Series of the Curiosities of Literature, consisting of Researches in Literary, Biographical and Political History (3 vols., 8vo., 1823); and Commentaries on the Reign of Charles I (5 vols., 1831).—His son is the author of several well-known novels, Vivian Gray, the Young Duke, Contarini Fleming, and others.

Doomsday Book. (See *Domesday Book.*)

Doornick. (See *Tournay.*)

Dorset, Earl of. (See *Sackville, Charles*, and *Sackville, Thomas.*)

Double Speeder. (See *Cotton Manufacture.*)

Drabants, or **Trabants.** (See *Guards.*)

Drawing Frame. (See *Cotton Manufacture.*)

Dredging is commonly applied to the operation of removing mud, silt, and other depositions, from the bottom of harbors, canals, rivers, docks, &c. The process of silting may be readily conceived, when it is considered that every rill of water carries with it a quantity, however minute, of earthy particles, and that these rills are so many tributaries to the brooks and rivulets falling into the great streams which form the drainage of the vast valleys through which they flow, finally carrying their waters to the sea. The beds of all large rivers, more particularly those which pass along comparatively flat or alluvial soils, are much encumbered in their channels by banks of sand and small gravel, while on their margins are found the finer or more minute depositions of silt and mud. Large streams, from the great body of water which they bring, and from the greater strength of their currents, will be always able to make a passage; but narrow and winding rivers, with slowly-flowing waters, are often materially injured by the depositions. To such a degree has this been experienced at Sandwich, in Kent, that that ancient seaport is left almost in the state of an inland town; and the port of Little Hampton, on the coast of Sussex, which was a harbor for the largest vessels two centuries since, at present admits only small colliers, and even those with difficulty, at high spring tides. The rivers of Holland, and those flowing through the plains of Italy, are, likewise, thus affected; and, according to the impurity of the waters, the entrances of docks and harbors, canals, basins, &c., are more or less silted up, and require to be cleansed or dredged. The late Mr. Rennie reported that 400,000 tons of mud were annually discharged into the Thames from the sewers of London. The innumerable shoals between the Nore and the Downs amply prove that this calculation is not exaggerated. The most simple mode of dredging, and probably the one originally adopted for removing the inequalities from the bottom of rivers and harbors, is the spoon dredging-boat. An apparatus of this description was used for dredging the harbor of Leghorn so far back as 1690, the expense of which was fifteen paoli (about one dollar and seventy-five cents) the boat-load, of the size of a small river barge. But Cornelius Meyer, a Dutch engineer in the employ of Cosmo III, grand-duke of Tuscany, built, at Leghorn, a dredging-boat, after the fashion of those in common use in Holland at that period. The expense of the construction of this boat is stated to have been $105, and the cost of dredging a boat-load five paoli, being only one third of the Italian apparatus. The spoon dredging-boat has been long, and is, indeed, still used in Holland and Flanders, in deepening the extensive tracts of canals. The excavated matters are generally of a mossy description, which, being compressed in moulds and dried, are used as turf-fuel. On the Thames, this operation is conducted on a large scale, under the immediate direction of the Trinity board; and the stuff dredged from the bottom, consisting chiefly of gravel, is sold, at the rate of about one shilling a ton, for ballast, particularly to the colliers; and to such an extent is this process carried on, that the Ballast hills of Shields and Newcastle, which are curious from their great extent, have been chiefly raised by the discharge from the vessels which have brought gravel in ballast from the Thames. The spoon apparatus consists of a strong ring or hoop of malleable iron, about six or seven feet in circumference, properly formed for making an impression upon the soft and muddy ground. To this ring is strongly attached a large bag of bullock's hide or tanned leather, perforated with a number of small holes, with a capacity of four or five cubic feet. A long pole or handle is attached to the spoon, and a rope to the bottom of the bag, for directing their position at the commencement of each operation. The pole or handle varies in length and thickness, according to the depth of water, from fifteen to thirty feet. This apparatus is generally worked with a wheel and pinion or winch; and the chain or rope is brought from the spoon to the winch, through a block suspended from a small crane, for bearing the spoon and its contents to the side of the boat. The purchase-rope is led upon deck by a snatch-block in the proper direction for the barrel of the winch. In situations where the command of head-water is considerable, it is retained in a scouring basin, which is a water-tight compartment of a harbor furnished with sluices to run off the water as required. All harbors left dry every tide at low water, wherein the deposition of mud is most apt to take place, ought, if possible, to be furnished with a scouring basin. For clearing the bottom and bar of a harbor, in conjunction with that mode of dredging which simply loosens the stuff, the use of the scouring basin is most effectual. The harbor of Montrose is a striking instance in point, where the great natural basin connected with that port is covered every tide, by which, it has been computed, about fifty-five millions of cubic yards of back water are obtained, which produce so great a current that the shifting sand-bank off the coast, called the Annet, is prevented from being thrown across the mouth or entrance of that harbor, in gales of wind from the eastward; and the navigation is kept open and preserved of considerable depth, even at the lowest ebbs. The same remarks are applicable to the entrance of all great rivers, in which the navigation can only be preserved by a strong current of water. The most eminent engineers in Europe, in accordance with this idea, have introduced scouring basins into their designs of tide-harbors. Of these, the sluices at Ostend and Ramsgate harbors are particular examples, where the silt in the outer harbors is dredged and loosened, and raked into the tracks or courses of the water issuing from the scouring basins. To effect this, the dredging-harrow, consisting of a frame of timber and plate iron, is used; the common harrow, the ordinary plough, and even large rakes, have been employed with good effect in many places, particularly in Holland, upon the extensive flats at the entrance of some of the large rivers. In wet docks connected with each other, much use may be made of this mode of scouring or floating away mud by opening numerous sluices from one dock into another. This has been done at Liverpool, Leith and Bristol, with good effect. But in the improvement of navigable rivers, many of these modes of dredging and scouring have been laid aside, and the operation of narrowing the channel and confining the current has been adopted. By this system, the bed of the river Clyde has been deepened from five to nine feet, to the great advantage of the trade and commerce of Glasgow. In like manner the opening of the Eau Brink Cut, a little above Lynn-Regis, has produced the most salutary effects in clearing away the obstructions in the river Ouse, below Ely; and the depositions in front of the town of Lynn will be scoured away so soon as a proper direction has been given to the current. The bucket dredging machine has been generally supposed to be of British origin; and it was certainly first used in England, by the late Mr. Rennie, at Hull. It is probable that steam was not applied to the bucket dredging apparatus prior to the commencement of the present century, nor brought into general use sooner than ten or twelve years after that period. At the present day, whenever a continued necessity exists for dredging, the steam apparatus is always employed.

Dshagatai. (See *Tartary.*)

Dun-Fish. (See *Cod.*)

Duse. (See *Deuse.*)

Dutch Gold. (See *Copper.*)

Dutch Leaf. (See *Divisibility.*)

Dutch School of Painters. (See *Netherlandish School.*)

Dutchman's Pipe. (See *Snakeroot.*)

Dwarf Rose Bay. (See *Rhododendron Maximum.*)

Dyke. (See *Dike.*)

Dysentery (*dysenteria*; from δυς, difficulty, and εντερα, the bowels); the flux. It is known by contagious fever; frequent griping stools; tenesmus; stools, chiefly mucous, sometimes mixed with blood, the natural fæces being retained or voided in small, compact, hard substances, known by the name of *scybala;* by loss of appetite, and nausea. It occurs chiefly in summer and autumn, and is often occasioned by much moisture succeeding quickly intense heat or great drought; whereby the perspiration is suddenly checked, and a determination made to the intestines. It is likewise occasioned by the use of unwholesome and putrid food, and by noxious exhalations and vapors; hence it appears often in armies encamped in the neighborhood of low, marshy grounds, and proves highly destructive; but the cause which most usually gives rise to it, is a specific contagion; and when it once makes its appearance, where numbers of people are collected together, it not unfrequently spreads with great rapidity. A peculiar disposition in the atmosphere seems often to predispose or give rise to the dysentery, in which case it prevails epidemically. It frequently occurs about the same time with autumnal intermittent and remittent fevers; and with these it is often complicated. The disease, however, is much more prevalent in warm climates than in cold ones; and, in the months of August, September and October, which is the rainy season of the year in the West Indies, it is very apt to break out, and to become very general among the negroes on the different plantations in the colonies. The body having been rendered irritable by the great heat of the summer, and being exposed suddenly to much moisture with open pores, the blood is thereby thrown from the exterior vessels upon the interior, so as to give rise to dysenteries. An attack of dysentery is sometimes preceded by loss of appetite, costiveness, flatulency, sickness at the stomach, and a slight vomiting, and comes on with chills, succeeded by heat in the skin, and frequency of the pulse. These symptoms are in general the forerunners of the griping and increased evacuations which afterwards occur. More or less fever usually attends, with the symptoms which have been described, throughout the whole of the disease, where it is inclined to terminate fatally; and is either of an inflammatory or putrid tendency. In other cases, the febrile state wholly disappears after a time, while the proper dysenteric symptoms probably will be of long continuance. Hence the distinction into *acute* and *chronic* dysentery. When the symptoms run high, produce great loss of strength, and are accompanied with a putrid tendency and a fetid and involuntary discharge, the disease often terminates fatally in the course of a few days; but when they are more moderate, it is often protracted to a considerable length of time, and so goes off at last by a gentle perspiration, diffused equally over the whole body; the fever, thirst and griping then ceasing, and the stools becoming of a natural color and consistence. When the disease is of long standing, and has become habitual, it seldom admits of an easy cure; and when it attacks a person laboring under an advanced stage of scurvy, or pulmonary consumption, or whose constitution has been much impaired by any other disorder, it is sure to prove fatal. It sometimes appears at the same time with autumnal intermittent and remittent fevers, as has been observed, and is then more complicated and difficult to remove. Upon opening the bodies of those who die of dysentery, the internal coat of the intestines (but more particularly of the colon and rectum) appears to be affected with inflammation, and its consequences, such as ulceration, gangrene and contractions. The peritonæum, and other coverings of the abdomen, seem likewise, in many instances, to be affected by inflammation.

E.

Ebn-Sina. (See *Avicenna.*)
Ebn-Zoar. (See *Avenzoar.*)
Echidna. (See *Platypus.*)
Echmim. (See *Achmim.*)
Eel-Pout. (See *Ling.*)
Egret. (See *Heron.*)
Egyptian Era. (See *Epoch.*)
El Sag. (See *Elephantina.*)
Elaps Fulvius. (See *Serpents.*)
Eliquation. (See *Silver.*)
Eloïse. (See *Heloise.*)
Elsa. (See *Ailsa.*)
Emphyteusis. (See *Contract.*)
English Sweat. (See *Plague.*)
Eratostratus. (See *Heratostratus.*)
Erbil. (See *Arbela.*)
Eresicthon. (See *Erisicthon.*)
Erse. (See *Gaelic.*)
Erythrean Sea. (See *Red Sea.*)
Escuage. (See *Tenures.*)
Essex, Earl of. (See *Cromwell*, and *Devereux.*)
Essonite. (See *Garnet.*)
Ethics. (See *Moral Philosophy.*)
Euchetes. (See *Messalians.*)
Evil Eye. (See *Fascination*, in this Appendix.)
Exhilarating Gas. (See *Nitrogen.*)

F.

Falatah. (See *Foulah.*)
Falls. (See *Cataract.*)

Fascination (Latin *fascinare*, which is derived from the Greek φασκαινω [φασι καινω], to kill with a look); the power of charming or bewitching by the eyes, the looks. A belief in fascination appears to have been very generally prevalent in most ages and countries. For the proof of its existence in Greece and Rome, we may refer, among other passages, to the wish of Theocritus (vii, 126), that an old woman might be with him to avert this ill by spitting (ἐπιφθυσδοισα), or the complaint of Menalcas, in Virgil (Eclogue iii, 102), that some evil eye has fascinated his lambs (*nescio quis teneros oculus mihi fascinat agnos*). Pliny (*Hist. Nat.*, i, 155) also speaks of persons among the Triballians and Illyrians, who, by their look, can bewitch (*effascinent*), and even kill, those whom they look steadily upon for a long time. The Romans had a god Fascinus, who was worshipped as the averter of fascinations, and the celebration of whose rites was intrusted to the vestal virgins. He was considered as the tutelary god of children and generals in particular; and his phallic attribute was suspended round the necks of the former and from the triumphal chariots of the latter. Reginald Scot, in his Discovery of Witchcraft, has endeavored to show the physical cause from which the fatal effect of fascination may be supposed to arise, viz. a certain venom in the eyes of those possessing the power, which is emitted in beams to the person suffering under its effects; but Vairus, a Benedictine monk (*De Fascino*, 1589), treats natural fascination as visionary, and determines that all fascination is an evil power attained by a compact with the devil. (See *Witchcraft.*) The power of fascination is attributed, by these and other early writers, to several animals. Wolves, if they see a man, first deprive him of all power of speech—a fact which is alluded to by Virgil (Eclogue ix, 54). A beautiful application of this notion is to be found in Plato's Republic, where Socrates is represented as thus expressing himself concerning Thrasymachus: "When I heard him, I was astounded; and, had I not seen him before he looked upon me, I should have thought myself struck dumb." The shadow of a hyæna was said to produce the same effect upon a dog; and the former animal was supposed to be so well acquainted with its own virtue, that when it found a man or dog sleeping, it would first stretch its length by the side of the slumberer, and ascertain its comparative magnitude. If itself was the larger of the two, then it was able to afflict its prey with the madness; if otherwise, it would quietly steal away. There are various remedies against fascination prescribed, such as fumigations, sprinklings, necklaces of jacinth, sapphire or carbuncle, &c.; and the ancients imagined that a person, by spitting in his own bosom three times, could prevent its ill effects. Some instances of a modern belief in fascination may be found in Brand's Popular Antiquities (ii, 401). It has been, till very recently, and in some remote districts is even yet, prevalent among the Scotch Highlanders, and the inhabitants of the Western islands, where the fear of the evil eye has led to various precautions against its influence. In sir John Cam Hobhouse's Travels in the Turkish Empire, we find the following account of the existence of this superstition in the Turkish dominions, both among Mohammedans and Christians: "When the child is born, it is immediately laid in the cradle and loaded with amulets; and a small bit of soft mud, well steeped in a jar of water, properly prepared by previous charms, is stuck upon its forehead, to obviate the effects of the evil eye—a noxious fascination proceeding from the aspect of a personified, although invisible demon, and consequent upon the admiration of an incautious spectator. The evil eye is feared at all times, and supposed to affect persons of all ages, who, by their prosperity, may be the objects of envy. Not only a Greek, but a Turkish woman, on seeing a stranger look eagerly at her child, will spit in its face, and sometimes, if the look is directed at herself, in her own bosom; but the use of garlic, or even of the word which signifies that herb (σκοδρον), is considered a sovereign preventive. New-built houses, and the ornamented sterns of the Greek vessels, have long bunches of it depending from them, to intercept the fatal envy of any ill-disposed beholder. The ships of the Turks have the same appendages." The power of fascination, which has been attributed to some snakes (toads, hawks and cats have been invested with it also), forms a curious chapter in its history. The existence of this power has been very gravely asserted by scientific writers till a comparatively recent period; and, in fact, this vulgar error was first exploded by doctor Barton, in a paper printed in the fourth volume of the American philosophical society (Philadelphia, 1799). The manner in which the supposed fascinating power is exerted is thus described by doctor Barton (p. 76). "The snake, whatever its species may be, lying at the bottom of the tree or bush upon which the bird or squirrel sits, fixes its eyes upon the animal which it designs to fascinate. No sooner is this done, than the unhappy animal is unable to make its escape. It now begins to utter a most piteous cry, which is well known, by those who hear it, to be the cry of a creature enchanted. If it is a squirrel, it runs up the tree for a short distance, comes down again, then runs up, and, lastly, comes lower down. 'On that occasion,' says a credulous, though honest writer (Kalm), 'it has been observed that the squirrel always goes down more than it goes up. The snake still continues at the root of the tree, with its eyes fixed on the squirrel, with which its attention is so entirely taken up, that a person approaching may make considerable noise without the snake's so much as turning about. The squirrel always comes lower, and, at last, leaps down to the snake, whose mouth is already wide open for its reception. The poor little animal then, with a piteous cry, runs into the snake's jaws, and is swallowed at once.'" Doctor Barton then combats the suppositions of Lacepède, that the effect thus described as produced, may be owing to au infectious vapor emanating from the body of the snake, or to the animal having been previously bitten by the reptile (which, Lacepède supposes, may also cause its cries, its agitation, and, finally, its falling down); and that of Blumenbach, that curiosity or fear, occasioned by the hissing and noise of the rattles, impels the animal affected to approach the cause of the noise; and endeavors to show that the notion that any such fascinating power is possessed by any animal, is entirely without foundation. We find, however, the following remarks on this subject, in a very recent work of high reputation (Griffith's translation of Cuvier's Animal Kingdom, Reptilia): "It has been almost universally believed, that, by certain special emanations, by the fear which they inspire, or even by a sort of magnetic or magic power, the serpents can stupify and fascinate the prey which they are desirous to obtain. Pliny attributed this kind of asphyxia to a nauseous vapor proceeding from these animals—an opinion which seems to receive confirmation from the facility with which, by the assistance of smell alone, the negroes and native Indians can discover serpents in the savannahs of America." The writer then mentions the opinions of Lacepède and Kalm, and the fact that many travellers have reported in favor of fascination. He then proceeds thus: "But this fact, which is so interesting in animal physiology, is not only far from being clearly explained, but even far enough from being sufficiently demonstrated. Notwithstanding the ingenious conjectures of sir Hans Sloane on this subject; the observations of Kalm, whose assertions were implicitly received by Linnæus; those of Lawson, Catesby, Brickel, Colden, Beverly, Bancroft and Bartram; notwithstanding a work published, *ex professo*, on the matter, by doctor Barton, of Philadelphia; and notwithstanding some recent accounts, by major Garden, of the stupifying power of serpents, which he attributes both to the terror which they inspire and to certain narcotic emanations from their bodies at particular times,—it must be confessed that this subject is still liable to controversy, and still involved in a considerable degree of obscurity. On the other hand, as the look of the dog stops the progress of the partridge, so we might imagine that the presence of man has a considerable influence over the faculties of some very justly dreaded serpents, and obliges them to obedience by, as it were, a certain kind of fascination. From the most ancient times, certain hordes of Arabia, such as the Psylli and the Marsi, were acquainted with some art of charming and taming those reptiles. Kæmpfer, and many other travellers, have left us accounts of the dance which the Indians make the naia perform. We also know, beyond any doubt, that the Egyptian jugglers cause the asp of the ancients, the *haje* of the modern Arabs, to play a variety of tricks at the word of command, and that they seem to imitate the magicians of Pharaoh, who pretended to turn their rods into serpents. It is also a remarkable fact, that music has a very considerable influence on these animals, to which we cannot otherwise attribute any large portion of sensibility."

Fasting; the partial or total abstinence of mankind and animals from the ordinary requisite supply of aliment, by which is to be understood that quantity which is adapted to preserve them in a healthy and vigorous condition. The principal instances of fasting, on record, are those which have arisen from shipwreck and similar accidents, from peculiar mental affections, or from the body being in a morbid state, or from the two latter combined. In a melancholy and well-authenticated instance of shipwreck, which occurred in the year 1795, seventy-two individuals were compelled to take shelter in the shrouds of the vessel, while the hull was covered by the sea, where all survived, during five days, without a morsel of food; but it appears that they were enabled to catch a few drops of rain as it fell, and some of them were drenched with the spray. A term of abstinence still longer is equally authenticated in the case of Thomas Travers, who, on Saturday, the fourth of December, 1784, entered a coal-pit 270 feet deep, the sides of which immediately fell in. The quantity of earth was so great, that six days were occupied in removing it; and no one could at first venture to penetrate the pit, on account of the foul air which was evidently present. Some miners, bolder than their companions, made a new attempt on Friday, and, guided by the traces of his work, found the unfortunate man lying on his face, in a cavity. He could raise his head, but his hands and feet were cold, and pulsation almost extinct. Immediate relief was afforded; but next morning he became indifferent about food, and, having announced his own dissolution, expired in a few minutes, on Sunday afternoon, after fasting seven days. This example illustrates the opinion of Hippocrates, though it is not corroborated by others, namely, that fasting less than seven days, is not invariably fatal; but after that period, notwithstanding individuals may survive and take food, their previous abstinence will occasion death. It is to be observed, that here was an instance of absolute privation. In the year 1768, captain Kennedy was shipwrecked, with twelve companions, in the West Indies. They preserved a small quantity of provisions, which were totally consumed in seven days, amidst extraordinary distresses. During eight succeeding days, though in absolute want, both of meat and drink, and exposed in an open boat, the whole survived; but, after obtaining relief, some of the people perished. In this case, they were evidently supported by being frequently drenched with sea-water. Sir William Hamilton, in an account of a dreadful earthquake which devastated Sicily and Calabria, in the year 1783, relates that he saw two girls who were miraculously preserved in the ruins of a house. One had survived eleven entire days, and the other six, totally deprived of food. It must not escape observation, that the difference between absolute privation of food and a supply of any portion of it is incommensurable. The same may almost be said of water; for it materially contributes to preserve life; and hence the difficulties of ascertaining what is truly protracted fasting. The negro couriers, who traverse the deserts on the western coast of Africa, perform long and fatiguing journeys on about four ounces of food daily. It is said that, in common situations, both they and the Moors are frequently seen to subsist eight days on three ounces of gum daily, without sensible diminution of health or vigor; and some maintain, that they can fast three days without any inconvenience. The whole store of a courier, at his outset, consists only of a pound of gum, a little grilled rice, and several ounces of hard animal jelly, compounded with a fourth of its weight in gum. This substance is decidedly nutritious; for we are told that, when the whole provisions of a caravan had been exhausted in the deserts between Abyssinia and Egypt, a thousand persons subsisted on gum, which was found to form part of the merchandise; and the caravan reached Cairo in safety, without any remarkable accidents from hunger or disease. The compound of the negro couriers may possess particular qualities in repelling hunger, such as that which, among the primitive inhabitants of Great Britain, is said to have proved sufficient, if equivalent to a bean, for a whole day; and some of the American Indians, when engaged in long excursions, have expedients for blunting the keen sensations which they would otherwise experience. A composition of calcined shells and tobacco juice is formed into a mass, from which, when dry, pills of a proper size, to be kept dissolving between the gum and the lip, are made. Long and perilous voyages have been accomplished without more than a ship's biscuit divided into a number of pieces daily. Captain Inglefield and eleven men, of the Centaur man-of-war, which foundered at sea in the year 1782, sailed 800 miles in a yawl, during a period of ten or fifteen days, while their sole provisions consisted of a twelfth part of a biscuit for each of two meals a day, and a glass of water. Still more perilous was the voyage of captain Bligh and eighteen men, of the Bounty, who sailed a great portion of 3600 miles in an open boat, in stormy seas, on an allowance of an ounce and a quarter of biscuit daily; and sometimes, when a bird, the size of a pigeon, was accidentally caught, it served for a meal to the whole crew. We shall not be much surprised, therefore, at the experiments made by some people on themselves, from which it appeared that fasting on half a pound of bread daily, with a pint of liquid, was productive of no inconvenience. Still there is an infinite difference between all this and absolute privation. Sea-weed has afforded many grateful meals to famished sailors. In the year 1652, two brothers, accidentally abandoned on an islet in a lake of Norway, subsisted twelve days on grass and sorrel. Few instances can be given of absolute privation both of solids and liquids; but in the case above referred to, where seventy-two persons took shelter in the shrouds of a vessel, fourteen actually survived during twenty-three days, without food, though a few drops of rain were occasionally caught in their mouths as they fell. Some of the survivors also drank sea-water; but it was not so with all. In the year 1789, Caleb Elliott, a religious visionary, determined to fast forty days. During sixteen, he obstinately refused all kinds of sustenance, and then died, being literally starved to death. It is said, that two convicts in the jail of Edinburgh lived fourteen days without food, and receiving liquids only; and in the records of the Tower of London, there is reported to be preserved an instance of a Scotchman, who, strictly watched, was seen to fast during six weeks, after which he was liberated on account of his uncommon powers of abstinence. Morgagni, an Italian physician, refers to an instance of a woman who obstinately refused all sustenance, except twice, during fifty days, and took only a small quantity of water, when she died. An avalanche, some years ago, overwhelmed a village in Switzerland, and entombed three women in a stable, where there was a she-goat and some hay. Here they survived thirty-seven days, on the milk afforded them by the goat, and were in perfect health when relieved. But one of the best authenticated instances of excessive fasting in modern times, and in which there is no evidence of any particular morbid affection of the body, is related by doctor Willan. In the year 1786, a young man, a religious visionary, and supposing himself to labor under some inconsiderable complaints, thought to operate a cure by abstinence. He suddenly withdrew from his friends, occupied himself in copying the Bible in short hand, to which he added his own commentaries, and resolved to abstain from all solid food, only moistening his mouth, from time to time, with water slightly flavored with the juice of oranges. He took no exercise, slept little, and spent most of the night in reading, while his daily allowance was between half a pint and a pint of water, with the juice of two oranges. In this state of abstinence he persisted sixty days; but during the last ten, his strength rapidly declined, and, finding himself unable to rise from bed, he became alarmed. The delusion which had hitherto impressed him of being supported by preternatural means now vanished, and along with it his expectation of some remarkable event, which should follow his resolution of self-denial. On the sixty-first day of his fast, doctor Willan was summoned to his aid; but the miserable object was then reduced to the lowest state of existence; and, although his eyes were not deficient in lustre, and his voice entire, he exhibited the appearance of a skeleton, on which the flesh had been dried; and his personal decay was attended with manifest mental imbecility. Nevertheless, with proper regimen, he so far recovered, as in a few days to be enabled to walk across his room; and a clergyman who had previously been admitted to visit him, dispelled his religious aberrations; but on the seventh day from the commencement of this system, his recollection failed, and he expired on the seventy-eighth from the date of his abstinence. An analogous case has been quoted by the same physician, of an insane person, who survived forty-seven days on a pint and a half of water daily, during which time he obstinately stood thirty-eight days in the same position. From extreme weakness, he lay down during the remainder, still refusing any thing but water; nor did this extraordinary abstinence prove fatal. Perhaps we should find many examples of fasting for a much longer period, on recurring to morbid conditions of the body; such as that of Janet McLeod, a young Scottish female, who, after epilepsy and fever, remained five years in bed, seldom speaking, and receiving food only by constraint. At length, she obstinately refused all sustenance, her jaws became locked, and, in attempting to force them open, two of her teeth were broken. A small quantity of liquid was introduced by the aperture, none of which was swallowed; and dough made of oatmeal was likewise rejected. She slept much, and her head was bent down to her breast. In this deplorable state, the relatives of the patient declared she continued to subsist four years without their being sensible of her receiving any aliment, except a little water; but, after a longer interval, she began to revive, and subsisted on crumbs of bread, with milk or water sucked from the palm of her hand. It is not evident that her convalescence ever was complete; and it rather is to be inferred that she always remained in a debilitated condition. After these extraordinary instances, chiefly belonging to our own era, to which many more might be added, we shall probably be less incredulous in listening to the accounts of the older authors. In regard to the sensations excited by protracted fasting, and its effects on the person of the sufferer, there is a difference resulting from the vigor both of body and mind, to which the influence of climate may be joined; but the most direful and lasting consequences frequently ensue. At first, every substance is ravenously devoured, to appease the cravings of hunger; every animal, the most loathsome reptiles, are welcome sustenance; and a paste is baked by the New Hollanders, composed of ants and worms, intermixed with the bark of trees. John Lery, who endured the extremity of famine in a voyage to Brazil, emphatically declared, that a mouse was more prized in the ship than an ox had been ashore; and he also informs us, that three or four crowns were paid for each. The natives of New Caledonia swallow lumps of earth to satisfy their hunger, and tie ligatures, continually increasing in tightness, around the abdomen. They seem to do so with impunity, although the custom of eating earth, in Java, which is done to reduce personal corpulence, is slowly, but invariably destructive. Last of all, recourse is had to human flesh, instances of which have occurred in all countries of the habitable world, on occasion of famine from sieges, shipwreck, or the failure of expected crops of grain. During this period, a material alteration is taking place in the mind: men become wild and ferocious; they view each other with malevolence; they are quarrelsome, turbulent, and equally regardless of their own fate as of the safety of their neighbors; they actually resemble so many beasts of prey. The sensations of hunger from protracted fasting are not alike in all; or it may be, that immediate languor operates strongly on those by whom it is not so severely felt. But it is certain that, after a particular time, little inclination for food is experienced, though great desire remains of quenching thirst. Captain Inglefield, of the Centaur, expresses his consolatory feelings on seeing one of his companions perish, that dying of hunger was not so dreadful as imagination had pictured. A survivor of that miserable shipwreck, during which so many people hung twenty-three days in the shrouds, observes, that he did not suffer much during the first three from want of food; that, after more had elapsed, he was surprised to have existed so long, and concluded that each succeeding day would be his last. To these examples may be added that of captain Kennedy, who considered it singular that, although he tasted neither meat nor drink during eight entire days, he did not feel the sensations of hunger and thirst. Without timely succor, the human frame yields under such privations; idiocy succeeds ferocity, or the sufferer dies raving mad. Should the consequences not be fatal, lasting diseases are frequently occasioned by the tone of the different organs being injured, sometimes incurably, and sometimes admitting palliation. It is evident, however, from the preceding observations, that protracted fasting is not so destructive as is commonly credited, and that mankind may, without danger, remain entire days destitute of food. Liquids are an effectual substitute for solids in preserving life; and drenching the body with salt or fresh water, or laving it copiously on the head, materially contributes in averting death by famine.—See *Philosophical Transactions* (1783); *Memoirs of the Manchester Society for* 1785 (vol. iii.); Lerius, *Navigationes in Braziliam; Asiatic Researches* (vol. iv, p. 386); Syme's *Embassy to Ava* (p. 130); Mackay's *Narrative of the Shipwreck of the Juno; Annual Register for* 1768, *and* 1783; *Gentleman's Magazine* (1789); Licetus, *De his qui diu vivunt sine Alimento.*

Fellatahs. (See *Foulahs.*)

Feuillants. (See *Jacobins.*)

Fisher. (See *Marten.*)

Fishkill Mountains. (See *Highlands of the Hudson.*)

Fitzwilliam, earl, was born in 1748. At the age of twelve, he was sent to Eton school, where he was contemporary with Charles Fox, lord Carlisle, and many other conspicuous characters. His agreeable and generous disposition endeared him to his fellow scholars. He finished his studies at King's college, Cambridge. In 1770, soon after he came of age, he married lady Charlotte Ponsonby; a union which united him more closely with the great whig families. Lord Fitzwilliam was decidedly hostile to the war against America. Under the administration formed by his uncle, the marquis of Rockingham, he did not hold any office; but, in his senatorial capacity, he strenuously supported his friends. Till the year 1793, his lordship continued to act with the whigs. In 1794, lord Fitzwilliam was appointed president of the council, and in the following year was sent over as viceroy to Ireland. In that unhappy and misgoverned country, his presence was fitted to produce great benefit. Holding one of the largest estates in Ireland, he had always been popular there, for the manner in which he treated his tenants. He was, besides, known to be friendly to the removal of the disabilities of the Catholics. The viceregal dignity was accepted by lord Fitzwilliam only on condition that he should be at liberty to take all such measures as were necessary to conciliate the Irish. He began to put his plans in execution, by removing from office those who were obnoxious to the people. But the influence of the men whom he had removed occasioned his recall. In 1798, he was made lieutenant of the West Riding of Yorkshire. In 1806, during the short administration of the whigs, lord Fitzwilliam was lord president of the council. Since that period, he has gradually withdrawn from politics. After the unhappy affair at Manchester (1821), he was one of those who attended a meeting at York, to call for an inquiry into the conduct of the official persons criminated; for which his lordship was dismissed from the lord-lieutenancy of Yorkshire.—His eldest son, *lord Milton*, has repeatedly sat in parliament for Yorkshire and Northamptonshire, and distinguished himself by his active support of the reform bill, although his father returned five members by his property and influence.

Five Nations. (See *Iroquois.*)

Flaccus. (See *Horatius Flaccus.*)

Flat Heads. (See *Choctaws.*)

Flemish School of Painters. (See *Netherlandish School.*)

Flerus. (See *Fleurus.*)

Fleur-de-Lis. (See *Lily.*)

Fleuret. (See *Silk.*)

Flying Squirrel. (See *Squirrel.*)

Fohi. (See *Fo.*)

Font. (See *Fount.*)

Forgery, at common law; the fraudulent making or alteration of a writing to the prejudice of another man's rights, or a making, *malo animo*, of any written instrument for the purpose of fraud and deceit; the word *making*, in this last definition, being considered as including every alteration of, or addition to, a true instrument. Besides the offence of forgery at common law, which is of the degree only of misdemeanor, there are very numerous forgeries especially subjected to punishments, by the enactments of a variety of English statutes, which, for the most part, make the forgeries to which they relate capital offences. The offence of forgery may be complete though there be no publication or uttering of the forged instrument; for the very making with a fraudulent intention, and without lawful authority of any instrument, which, at common law, or by statute, is the subject of forgery, is of itself a sufficient completion of the offence before publication. Most of the statutes, however, which relate to forgery, make the publication of the forged instrument, with knowledge of the fact, a substantive offence. It is said by Hawkins (*P. C.*, c. 70, s. 2), that the notion of forgery does not seem to consist in the counterfeiting of a man's hand and seal, which may often be done innocently, but in endeavoring to give an appearance of truth to a mere deceit and falsity, and either to impose that upon the world as the solemn act of another, which he is no way privy to, or at least to make a man's own act appear to have been done at a time when it was not done, and, by force of such a falsity, to give it an operation which, in truth and justice, it ought not to have. A deed forged in the name of a person who never had existence, is forgery at law, as was determined in Bolland's case. (*O. B.*, 1772; 1 *Leach*, 83; 2 *East's P. C.*, 19, sec. 49.) A writing is forged where one, being directed to draw up a will for a sick person, doth insert some legacies therein falsely out of his own head. It is not material whether a forged instrument be drawn in such manner that, if it were in truth that which it counterfeits, it would be valid. The punishment of forgery at common law is, as for a misdemeanor, by fine, imprisonment, and such other corporal punishment as the court in its discretion shall award. The punishments ordained for the offence by the statute law in England are, with scarcely an exception, capital. In the U. States, the punishment is generally imprisonment, with hard labor for a term of years, or for life, according to the degree of the offence.

Fossil Remains. (See *Organic Remains.*)

Fox, Henry Richard. (See *Holland, Lord.*)

Fracture (from *frango*, to break) is applied to the bones, and is divided into simple and compound; simple, when the bone only is injured; compound, when the soft coverings are so injured that either one of the fractured ends protrudes through the skin, or the skin and muscles are so lacerated as to expose the bone. The long cylindrical bones of the limbs are most frequently fractured; next the flat, particularly of the cranium (for those of the pelvis and scapula must be excluded); and, lastly, the round, irregularly-shaped bones of the tarsus, carpus and vertebræ. The bones are fractured by external violence, disease, and the action of the muscles. The long cylindrical bones are not unfrequently broken in more than one point: they are generally fractured at the centre of their shafts, in which case the fracture is more or less oblique; whereas, when it occurs near the extremes, it becomes more and more transverse; hence fractures have been divided into oblique and transverse. The spongy bones are also fractured transversely; the flat bones in various directions, occasionally stellated. A comminuted fracture occurs when a bone is broken in different places at once, and divided into several fragments or splinters. Longitudinal fractures also occur to the long cylindrical bones. Complicated fractures are those accompanied with luxation, severe contusions, wounded blood-vessels, pregnancy, gout, scurvy, rickets, fragilitas ossium, and syphilis, which diseases prevent the union of the bones, and also cause them to be very easily broken. Cold renders the bones more fragile; and they are also more brittle in old age. The superficial are more exposed to fracture than the deep-seated bones; thus the clavicle is more so than the os innominatum. Others, from their functions, are more exposed; as, for example, the radius, from its affording support to the carpus. When a fracture takes place, there is an effusion of blood from the vessels of the bone, periosteum and contiguous soft parts; the muscles are violently excited; the periosteum and truncated ends of the bone inflame; and, after the inflammation subsides, the vessels of the periosteum and ends of the bone secrete callus, which is an effusion of gelatin that is gradually converted into cartilage, and, lastly, into bone, by the secretion of phosphate of lime, precisely in the same manner as the formation and conversion of bone in the fœtus. During the inflammatory action, no diseased secretion takes place; nay, even the healthy natural ones are more or less suspended, so that no advantage is gained by setting a fracture immediately after the injury: on the contrary, this primary setting, as it is termed, reexcites the already spasmodic action of the muscles, and, in nine cases out of ten, disappoints the hopes of the surgeon. Callus does not harden for many days: in the adult, it begins generally about the tenth or twelfth day; Boyer, however, says that it is not formed until between the twentieth and seventieth day. The treatment of a simple fractured bone is, to lay the limb in the easiest position for the patient; to apply leeches and anodyne fomentations or poultices; to put him on low diet, enjoin perfect rest, and administer gentle laxatives, until all inflammatory action is subdued; then to extend the limb to its natural length, or apply pasteboard splints dipped in warm water, with wooden ones exterior to them, and fastened with tapes. This latter is termed *secondary setting*, and is applicable to all the bones of the extremities.

France since 1830. The revolution of July, 1830, had driven one dynasty from the throne of France, and seated another in its place: it had thus prevented a return to the despotic government of the seventeenth century, and preserved the little share of liberty which the charter of 1814 had granted, with a sparing hand, to the French nation. In theory, it sanctioned the doctrine of the sovereignty of the people, and dealt a fatal blow to the absurd notion of passive obedience; but in practice, it has done little towards realizing the expectations of those who looked to see a monarchy surrounded by republican institutions substituted for the charter government. The popular or revolutionary party, or "party of the movement," as they have been called, demanded that the work of reform should go on, and that more power should be lodged in the hands of the people; while the conservatists, or *juste milieu* (proper medium) party, resisted all further change, and were desirous to go as little out of the way of legitimacy as possible. The majority of the chamber of deputies, which had been elected previous to the revolution, was of the latter party, while the ministry was divided. Lafayette, Lamarque, Dupont de l'Eure, Odillon-Barrot, &c., were among the most prominent of the movement party: of these, Lafayette was commander-in-chief of the national guards, Dupont de l'Eure keeper of the seals, and Odillon-Barrot prefect of the Seine. In the month of August, four of the ex-ministers, Peyronnet, Guernon de Ranville, Chantelauze, and Polignac, had been arrested; and, on the 23d of September, a committee of the chamber of deputies reported resolutions in favor of impeaching them of treason, for having falsified the elections, arbitrarily changed the institutions of the kingdom, and excited civil war. After two days' discussion, the report was accepted: on the 30th, the impeachment was sent up to the peers. The accused were then examined before a commission appointed by the peers for this purpose, and the 15th of December was finally fixed upon for the trial of the impeachment. Meanwhile, a motion had been made and carried, in the chamber of deputies, for an address to the king, praying him to cause a bill (*projet de loi*) abolishing capital punishments to be presented for their consideration. The king, in his answer, promised to comply with this request, and expressed his disapprobation of inflicting capital punishments for political offences. The people, who demanded vengeance on their late oppressors, considered this in the light of a conspiracy between the executive and legislative, to screen them from their fate; and, on the 17th and 18th of October, mobs assembled before the Palais Royal, uttering threats against the government. The national guard and the troops of the line were both put in requisition to preserve tranquillity; and the ministers felt themselves obliged to abandon the intended bill. On occasion of the disturbances, Odillon-Barrot, prefect of the department of the Seine, had issued a proclamation exhorting the people to preserve order, in which he designated the proposition of the ministers as unseasonable. The conservatists in the ministry resented the use of such language by a subordinate officer, and demanded his dismission. But the king, fearful of the consequences, would not consent to this step; and baron Louis, the duke de Broglie, count Molé, and Guizot, immediately quitted their offices. The new ministry was now composed of the *mouvement* party: Dupont retained the seals, Sébastiani the navy department, and Gérard the war department, while Laffitte succeeded to the post of president of the council and minister of finance, marshal Maison to that of minister for foreign affairs, Montalivet to the ministry of the interior, and Merilhou to that of public instruction. In a few days, however, general Gérard retired, and was replaced by marshal Soult; marshal Maison was succeeded by Sébastiani; and the marine was given to count d'Argout. The trial of the ministers finally came on Dec. 15, and lasted to the 21st, the court sitting every day from ten o'clock till four. M. Persil, the attorney-general, Bérenger, reporter of the committee who had prepared the bill, and Madiez de Montjau, were appointed on the part of the deputies to conduct the impeachment. The 15th, 16th and 17th were occupied in the opening of the charge by Bérenger, and the examination of witnesses. The evidence of the first charge, that of having interfered with the elections, consisted of the circulars of the ministers, requiring the public functionaries to vote for ministerial candidates, and of other written instruments, promising places in return for votes. The charge of having arbitrarily changed the institutions of the country, rested on the memorial to the king, and the ordinances themselves, the illegal and unconstitutional nature of which was undeniable. The use of military power to enforce them was equally a crime; and the charge of having excited civil war, and armed the citizens against each other, was made out by evidence, showing that they had directed and approved of the employment of the troops in Paris during the three days. The 18th, 19th and 20th were occupied by the speeches of the attorney-general on the import of the evidence, and of the counsel for the prisoners, and by the reply of M. Montjau for the impeachment. The counsel for the accused were M. Martignac for prince Polignac, Sauzet for Chantelauze, Hennequin for Peyronnet, and Crémieux for Guernon de Ranville. Martignac contended, first, that, as the provision of the charter, which rendered the ministers responsible, also declared the person of the king inviolable, and the nation had, by the acts of July, chosen to render the king personally responsible, and driven three generations at once from the throne,—that article of the charter was virtually annulled; secondly, that the chamber of peers did not constitute the court prescribed by the charter, as two fifths of its members had been ejected by the accusers themselves; and, thirdly, that there was no law which applied to the case, the charter having only provided that laws should be passed defining what should be esteemed treason, which laws had never been enacted, and the articles of the penal code, which described certain offences, supposed to be similar to those with which the prisoners were charged, not designating them as treasonable. The managers of the impeachment asserted, in reply, that the ministers had rendered themselves responsible by signing the ordinances, and that the expulsion of the royal family was only one consequence of their crime, from the punishment of which the accomplices could not expect to escape, on the plea that the principals had been condemned. On the 21st, the court found the prisoners guilty of treason, under the fifty-sixth article of the charter, by having countersigned the ordinances of July 25, attempted to enforce the execution of them by arms, and advised the king to declare Paris in a state of siege, to subdue the legitimate resistance of the people. The judgment then declared that, as no law had determined the punishment of treason, it belonged to the court to supply the deficiency; and condemned prince Polignac to imprisonment for life, and to civil death; and Peyronnet, Chantelauze, and Guernon de Ranville, to imprisonment for life, with the loss of their titles, rank and orders.—See *Procès des derniers Ministres de Charles* X (2 vols., Paris, 1830).—While the trial was going on, the Luxembourg was surrounded by a clamorous mob, demanding the death of the prisoners, and threatening vengeance in case the sentence was not satisfactory. As the trial proceeded, and it began to be suspected that a capital sentence would not be pronounced, the violence of the multitude increased, and every thing seemed to menace a new insurrection. The troops and national guards were kept under arms by night, and bivouacked in the public places. The whole personal influence of the king and of Lafayette was also employed to soothe the populace: still the number and clamor of the mob became so alarming that it was determined to remove the prisoners secretly to Vincennes before sentence was pronounced. This being accomplished on the 21st, the populace received the annunciation of the sentence, on the next day, without committing any actual violence, as they had no direct object of attack. These disturbances were no sooner over, than the question of the extension of the elective franchise became a subject of division between the chambers and the ministry, and also divided the ministry itself. The consequence was the retirement of the keeper of the seals, Dupont de l'Eure, who was in favor of more extensive changes than his colleagues in the ministry; Odillon-Barrot also resigned the prefectship of the Seine. The chambers were, likewise, employed, at this time, in the permanent organization of the national guard, and were disposed to abolish the office of commander-in-chief of that body, which had been created during the summer, and bestowed on Lafayette. The influence of that illustrious patriot had been somewhat diminished by the successful conclusion of the trials, and the suppression of the riots of December,—results which his authority had contributed so much to bring about,—and the conservatists now became desirous to get rid of those very men who had directed the storm of the revolution, and calmed its fury. Lafayette, therefore, perceiving the counter-revolutionary tendency of the government, resigned his post on the 24th December; and count Lobau was appointed commander of the national guards of Paris, that of commander-in-chief of the national guards of the kingdom being thus abolished. Thus the party of the movement, composed of many able and highly popular men, was thrown into opposition to the government, while the chamber of deputies, which, as we have before said, had been elected before the revolution, was disposed to look upon the ministry with jealousy, as partaking too much of the revolutionary leaven. This, then, was the state of France at the close of the year in which the act of the revolution had occurred. A new king, who was understood to have no great regard for the "men of July," and who was willing to end the revolution with the change of dynasty which seated himself on the throne, had been created by the two chambers, without any appeal to the national voice. Those chambers consisted of the peers, men in general attached to the old *régime*, and enemies of the revolution, and of the deputies, composed of a majority of men who had been inclined to oppose the arbitrary policy of the late government as inexpedient and unsafe, and had so far yielded to the popular call as to sanction the change of dynasty, but had no wish to make further changes in the constitution of the government. The courts of law were composed almost entirely of friends of the old order of things, many of whom had shown themselves the ready instruments of an arbitrary administration in prosecuting the friends of freedom. The body of the nation had, of its own accord, formed itself into national guards, which chose their own officers; but it had never been accustomed to the exercise of any political rights, and it now looked to be admitted to the privileges of freemen. It demanded the abolition of the hereditary peerage, the extension of the elective franchise, and a new organization of the municipal administration, in which the nation should be permitted to take part. In regard to foreign affairs, the patriots, or the movement party, were urgent for a favorable answer to the overtures of the Belgians. They complained of the refusal to accept the crown, which had been offered to the duke of Nemours, and they complained equally of the interference of the French ministers in preventing the election of the duke of Leuchtenberg. (See *Belgium*, in this Appendix.) "When called upon," said Lafayette, "to explain my notions of non-intervention, I declared that, whenever the right of sovereignty was claimed by the people, every intervention in the affairs of that people should be considered as a declaration of war against France. As to the union of Belgium with France, I would not have stopped to inquire whether it would be displeasing to this or that power; I would only have asked whether it was the will of a majority of the Belgians to effect, and the will of the representatives of the French nation to accede to, the union." In the beginning of the year 1831, the public mind continued to be agitated by conspiracies and rumors of conspiracies of the Carlists, or partisans of the exiled family. On the 15th of February, an attempt was made to celebrate the anniversary of the assassination of the duke de Berri; and a print of the young duke of Bordeaux, his son, was crowned with flowers. This foolish or criminal act rendered Paris the scene of new riots. A mob collected and entered the church, tearing down the crosses and *fleurs-de-lys*, or emblems of Carlism. They then sacked the archiepiscopal palace, and proceeded to commit similar acts of violence; and the government were obliged to calm the excitement by causing the *fleurs-de-lys*, and other obnoxious emblems, to be removed from all public buildings. Another consequence of this affair was the bringing in a bill for the perpetual exile of the banished royal family from France, which passed the chamber of deputies by a majority of 332 to 122, and the peers by a majority of 29. On the 13th of March, the Laffitte ministry, which had enjoyed neither the favor of the king, of the conservatists, nor of the movement party, resigned their portfolios, and were succeeded by men of the former party, Casimir Périer, president of the council, taking the office of minister of the interior, baron Louis succeeding Laffitte in the department of finance, and admiral Rigny, d'Argout in that of the marine. Sébastiani and Soult retained respectively the foreign and war departments, and Montalivet exchanged that of the interior for that of public instruction. The new ministry was much more firm and energetic than the former one, and declared the principles on which it was determined to govern, to be, to put down all irregular power at home, and to refrain from all armed intervention abroad. One of the first measures of the new ministry was the introduction of a bill, in the nature of a riot act, for the prevention of those crowds and commotions which continually disturbed Paris. It enacted that all persons forming an assemblage in any public place should be bound to disperse when required to do so by the prefect of police; and that, after the summons had been repeated three times in vain, force might be used. This law served to strengthen the hands of government; and it was rigorously executed in April, when the public peace was disturbed by some riotous assemblages of the populace, which seemed to have no definite object or assignable cause. A new electoral law had been already brought before the chambers by the former ministry. By the old law, the qualifications of an elector were, that he should pay 300 francs of direct taxes, and be, at least, thirty years of age: these qualifications excluded the great body of Frenchmen from the elective franchise, which, in fact, belonged to a small body of not more than 80,000 men out of a population of 32,000,000. The *projet* of the ministers was to double the number of electors in each college (see *Elections*), taking the whole number from those who paid the highest tax in each department. After considerable discussion, the chamber of deputies, however, fixed the qualifications of electors at 200 francs of direct taxes, and twenty-five years of age, with a provision that when the number of electors was smaller than one in one hundred and fifty inhabitants, the next highest taxed should be included in the electoral list to make up the proportionate number. This change carried the number of electors to about 215,000. The departmental colleges, composed of the fourth part of the electors who paid the highest taxes, and who had a double vote, were also abolished, and the qualification for being elected was reduced from the payment of 1000 to 500 francs of direct taxes. It now remained to fix the budget for the year. Laffitte had opened his budget, but the supplies had not been voted at the time of his resignation. The extraordinary services of the year alone amounted to nearly 220,000,000 fr., and he had proposed to raise 200,000,000 by sales of the national forests. M. Périer proposed to raise a loan of 120,000,000 francs in *rentes* at five per cent. The necessary votes having been passed, the king prorogued the chambers on the 20th of April; and the chamber of deputies was afterwards dissolved by an ordinance of the 24th of May. Notwithstanding the popularity of the king, discontents and political divisions continued in full force throughout his dominions. It was no longer doubtful, however, that the government, with M. Casimir Périer at their head, felt increased strength. Accordingly, M. Anthony Thowret, editor of the *Révolution* newspaper, was prosecuted, and sentenced by the court of assizes to three months' imprisonment and a fine of 5000 francs, for an article published by him, calculated to bring the king's government into hatred and contempt; and, on an attempt being made to consecrate the column in the place Vendome as an altar to the name of Napoleon, on which occasion the public strewed the rails, the column itself, and the area between, with dedicated books, prints, writings, votive garlands, crowns, wreaths, &c., the prefect of police, with the national guards, repaired speedily to the spot, turned out the worshippers, and actually swept the whole of the offerings from before the popular idol, without resistance. About the same period, a medal was decreed to be struck for the decoration of those who principally distinguished themselves during the "days of July." This decree, however, was not carried into execution without jealousy and contention. The ministry designated the ornament as *donné par le roi* (given by the king), and required an oath to Louis Philippe and the charter. The individuals for whose honor the decoration was designed, objected to the reception of that from the king which they had earned from the nation; and the consequence is stated to have been that, out of 1528 persons, to whom the medal was assigned, upwards of 1000 refused to accept it on the terms proposed. In the midst of this anarchy, the king of the French, with that prudential foresight and conciliatory disposition which have characterized most of his movements, determined on a tour through the provinces of his dominions, one of his objects having doubtless been to attach to his person, by so popular a course, a large portion of his subjects, who might otherwise have been disposed to join the disaffected. During this progress, his majesty was received every where with great enthusiasm. At St. Germain, Poissy, Nantes, Dieppe and other places, he reviewed different bodies of the national guards, amid the acclamations of the populace, who, from St. Cloud to the limits of the department of the Seine and Oise, formed a line on each side of the high road, with banners, tri-colored flags and branches of trees. Yet, notwithstanding these loyal demonstrations, France still contained all the elements of political excitement; and to cope with the agitation arising from the conflicting elements, was no easy task to a newly-established government; but, by the active coöperation of the national guard, the efforts of the authorities had hitherto been successful in repressing the numerous tumults with which they had been compelled to contend. In the early part of June, France declared war against Portugal, with the following claims: "Liberty to Bonhomme, with 20,000 francs of indemnity, and the dismissal of his judges; the recall of Claude Souvinet from banishment; an indemnity of 6000 francs to each of the Gambergs and Vallons detained at Oporto, and 10,000 francs to Dubois; adherence to the French form of arrest; prohibition of the insertion of articles in the journals against France or its government, and of political discourses against the French by ecclesiastics; and, lastly, an apology to the French consul, for offensive expressions injurious to his character." This expedition, however, for which considerable preparation was made, ended in the capture of eight Portuguese ships of war, which caused a speedy adjustment of the differences which had been complained of. On the 14th and 15th of June, a commotion of rather a serious character arose in Paris, which was not subdued without the interference of the military. Its origin was absolutely insignificant, having arisen from the unfeeling attack of a watchmaker on a young ballad-singer, who was chanting "Napoleon in the Hundred Days." This assault on the minstrel was instantly resented by the mob by a fierce attack on the premises of the watchmaker, and by a cry of "Down with the Carlists." Trifling as was the cause of offence, the tumult prevailed to such an extent, that several corps of municipal and national guards were served with ball-cartridge, and remained under arms all night, in the apprehension that the rioting would be renewed in the evening, which, however, happily, was not the case. At Beauclaire, also, in the south of France, there was some serious rioting about the same period. The people there, on the day of the fête, raised the tree of liberty; and, the mayor having called out the troops to pull down the tree and disperse the multitude, the soldiers joined the patriots; and a body of Carlists, who came from the country to pull down the tree, were attacked by the chasseurs, some killed, some wounded, and others taken prisoners and ill used. Lyons was also visited by some disturbances, and the Chouans agitated the west of France; but, by the vigorous measures of government, all these tumults were speedily repressed. A reform of the chamber of peers now became the principal cry in France; in other words, the abrogation of hereditary peerage, and the appointment of a senate, the members of which should possess, from their personal characters, a solid claim to public confidence. The venerable and popular Lafayette published a long election address, in which he strongly advocated the expediency of a peerage for life only; and so unpalatable had hereditary power been in France since the revolution of 1789, that the government was obliged to make this concession to the public will. Meantime other subjects occupied the minds of the French—the settlement of Belgium, the deliverance of Poland, and the emancipation of Italy and the Peninsula; and the meeting of the chambers was looked forward to with intense interest. The elections had taken place in the beginning of July; and, although great efforts had been made by the movement party, they gave a decided majority in favor of the ministry. Of the thirteen deputies returned for Paris, the ministerial party carried eight. Pledges, however, were very generally demanded, and as generally given, to abolish the hereditary peerage; but, except upon this point, the movement party did not seem to have gained any accession of strength by the creation of the new constituency. It should, however, be remarked that this constituency was, as we have already stated, extremely small, and that the whole administration, down to the minutest ramifications, being lodged solely in the hands of the government, its influence is much greater than persons accustomed only to our administrative machinery would be apt to suppose. On the 23d of July, the king opened the chambers with a speech which produced a very powerful effect. Adverting to the internal state and interests of the country, he declared his resolution to punish equally the machinations of Carlist conspirators and of republican alarmists. He stated that the Austrians, on the demand of France, had evacuated the papal states; that the Belgic fortresses on the side of France were to be demolished; and that the Portuguese fleet had been captured. On the 27th, 28th and 29th of July, the celebration of the three memorable days of the previous year's revolution took place, and was attended with great splendor and popular enthusiasm. The first day was devoted to the inauguration of the brazen tablets in the Pantheon, recording the names of the heroes who fell in the cause of liberty—a very splendid and imposing ceremony. On the second day, Paris became one great fair, when the population gave themselves wholly up to joy and merriment. On the 29th, there was a review, which was a grand spectacle. The king and royal family were every where received with the greatest enthusiasm. There were above 100,000 men under arms; and the cordiality which pervaded the ranks appeared almost to confound the rules of military discipline. The election of the *bureaux* (that is, of the president and secretaries of the standing committees of the chamber of deputies) showed the strength of the ministerial party. Out of eighteen, the opposition carried only six. But the great trial of strength was to take place in the choice of the president of the chamber. The friends of M. Laffitte had determined to elect him president: the ministerial candidate was Girod de l'Ain; and the prime minister had declared that if the former was chosen he should immediately retire. Laffitte, though by no means with the movement party, was supported by them as an opposition candidate, as well as by a large body of his friends. The struggle, which was severe, resulted in the choice of the ministerial, by a plurality of only three votes above the opposition candidate. In consequence of the smallness of the ministerial majority, M. Casimir Périer resigned, and the ministry was dissolved; but, on the invasion of Belgium by the Dutch being communicated by king Leopold, and a resolution formed to send 50,000 French troops to repel it, they consented to retain office for some time longer. The effect of the assistance thus afforded to Belgium, will be found noticed in our article *Belgium*, given in this Appendix. Riots, in Paris and other parts of France, for the most insignificant causes, and the question of the abolition of hereditary peerage, continued subjects of apprehension and agitation until the middle of September. On the 16th of that month, the fall of Warsaw to the Russians was officially announced by ministers to the chamber of deputies. This intelligence became at once the topic of conversation and indignant declamation in every circle; and, on Friday, the 17th, "War against Russia!" and

"Long live the brave Poles!" were the shouts of most formidable rioters in the Palais Royal and boulevards, who attacked the hotel of the minister for foreign affairs, and committed many other outrages. On the following day, the ministers Périer and Sébastiani were burned in effigy; and the vast multitude which had congregated could only be controlled by the military. The riots continued throughout the whole of Sunday, and, on Monday, were prosecuted with renewed violence, and the most dangerous cries and vociferations, as, "Down with the king!" "Turn out the ministers!" &c. The apprehension of twenty of the ringleaders, who, assembled in the retired apartment of a secluded dwelling, were taken in the act of arranging plans for further riotous proceedings, and the loyalty of the national guard and soldiers of the line, frustrated the designs of the disaffected; and the explanations of the war minister, Sébastiani, contributed materially to satisfy the minds of the more intelligent of the citizens of Paris. "Every pacific exertion," he said, "had been made to assist Poland against Russia. Poland had 3,000,000 men, it was true; but it had neither ports, mountains, nor means of defence. Overtures, nevertheless, had been made at St. Petersburg, and Russia had been made to feel that the fate of Poland was a question of interest to Europe. It had been promised by the cabinet of Petersburg, that the kingdom of Poland should be preserved; and in this all the great powers of Europe concurred." On the 10th of October, the annihilation of the hereditary quality of the French peerage was carried by an overwhelming majority, the numbers having been 324 to 86. With the exception of discontents in the provinces, and the discussions arising from the measures taken by government against the efforts of a few of the refractory editors of public journals, affairs now, for some time, bore an aspect of comparative tranquillity. Such, in the beginning of November, was the internal state of France; and its probability of peace with other nations was equally flattering. The *Moniteur* of the 22d November contained a list of newly-created non-hereditary peers, comprising some of the most distinguished leaders of the old Buonapartean army; namely, generals Pajol, Drouot, Drouet, Bonnet, Gazan, Flahaut, Excelmans, Lagrange, Dauthouard, Rogniat, Caffarelli, &c.; two admirals, Jacob and Emerian; Maret (duc de Bassano), count Philippe de Ségur (the historian of the Russian campaign), Alexander de la Rochefoucauld, &c.; also several scientific and literary characters, as the baron Cuvier, Cassini and Gilbert des Voisins; with a few of the old noblesse of France, viz. the prince de Beauvieu, comte de Turenne, marquis de Bizemont, and others. The object of the king and ministers, in these selections, appears to have been to conciliate all except the republican party. This creation had been rendered necessary from its having been sufficiently ascertained that a majority of the peers was not only against the abolition of the hereditary principle, but had determined to maintain their opinions in spite of the dangers which might arise from such an opposition to the popular will. The bill was carried through that chamber (Dec. 27) by a majority of thirty-six, exactly the number of new peers that had been created. A bill also passed the two chambers, banishing from France for ever all the members of the elder branch of the Bourbons and their descendants. Although disapproved of by the ministers, it was carried by a large majority, with an amendment, by which the penalty of death, attached by the bill to a violation of the prohibition against entering the kingdom, was omitted. The same bill, by its second section, denounced the same sentence of perpetual exclusion against the family of Napoleon. The crowds that produced the repeated riots which so frequently disturbed the peace of Paris during this year, were principally furnished from the multitudes of unemployed men, whom the unsteadiness of all relations, consequent on the revolution, had deprived of the means of support. Credit, trade and manufactures had all equally suffered. These riots, again, by increasing the feeling of insecurity, augmented the mischief. In the course of the autumn, the chambers had voted 18,000,000 francs to be applied to the relief of the manufacturers, and in providing employment for the people. In asking this grant, the minister of commerce stated that the existing distress arose, in a great measure, from the riots so frequent in the capital; but it existed likewise in the provinces, and, at Lyons, led to disturbances much more serious than those which had molested Paris. A suburb of that city, called the *Croix Russe*, is inhabited principally by weavers, as are also the suburbs of Vaize, La Guillotière, and Les Bretteaux, the whole population of these suburbs being about 36,000. The weavers, it appears, had been discontented ever since the revolution of 1830, which had so materially depressed their trade that it was barely possible to subsist on their wages. Some time previous, they had resolved on a tariff or price-list, which, however, in consequence of the state of their trade, the masters were compelled to reject. On the 21st of November, the workmen simultaneously struck for wages, and the tumult immediately commenced, the mob of the town, men, women and children, joining with the insurgent weavers, many of them being armed. The national guard were speedily called out; but their conduct on the occasion appears to have been equivocal, and their interference fruitless. The prefect of the police and commandant of the garrison, general Ordonneau, endeavored in vain to pacify the rioters, the number of whom, well supplied with arms, became hourly more formidable. The mob, at length, after having been fired on by the national guard, and some of them sabred by the cavalry in repeated charges, became desperate, and attacked and disarmed several bodies of the military, and took two cannons; for which, and their muskets, they cast balls during the night, at the same time barricading the streets of their quarter. On the following day, they attacked and beat the troops and national guard in every quarter. Immense multitudes from the fauxbourgs and the heights of La Croix Russe, marched on the Hotel de Ville, carrying the principal posts and bridges by the way, and driving back the troops. The workmen in all parts of the town coöperated in this movement, by unpaving the streets, raising barricadoes, and firing on the military from the windows. They also burned the buildings of the *octroi* (tax-houses), and several dwelling-houses, from the windows of which they had observed the firing of their opponents to proceed. Nothing was carried away, but all was burned or broken on the spot, with the view of showing that it was not plunder which was sought. These troubles at Lyons were announced at Paris by the *Moniteur* of the 23d of November, in the shape of a private letter, and caused the greatest excitement in the metropolis. On the 25th, the same paper published an ordinance of the king, appointing the duke of Orleans and the marshal duke of Dalmatia (Soult) to repair instantly to Lyons, and take the necessary steps for the suppression of the insurrection. The troops of the line being expelled from the city, on the 24th all was quiet. The shops and theatres were opened, and the workmen and their allies (among whom are stated to have been many of the national guard) were in possession of the city, which was kept then in a state of siege. Its authorities had been deposed by an insurrectionary mob, and its armed force expelled: yet, when victory had thus been obtained, the insurgents of Lyons instantly embraced the opportunity to recall and acknowledge the civil authorities whom they had temporarily deposed, denying all political motive, and simply demanding such regulations as should secure them food. The consequences of this extraordinary state of affairs were, that order became perfect, and business and pleasure were at once resumed, though the city was still virtually in possession of the insurgents and their partisans. On the 24th, the municipal council of Lyons voted the sum of 150,000 francs, to provide for the immediate necessities of the distressed workmen, and to afford succor to the wounded and their families. For the same purposes, a public subscription was opened, to which the contributions were considerable. From the most authentic accounts it may be collected, that the number of killed, on both sides, during the sanguinary contention of which Lyons was the scene, was between 500 and 600; of wounded, the amount was much more considerable. On the 4th, the duke of Orleans and marshal Soult, with a formidable escort of national guards, troops of the line, chasseurs and artillery, entered the city without impediment. The prince was received by the mayor of Lyons, who addressed his royal highness, and received a gracious reply. The troops having repaired to their quarters without interruption, an order of the day was issued, dissolving the national guard of Lyons, Guillotière, Croix Russe and Vaize, with disgrace, and commanding the instant surrender of their arms. The colonel of the thirteenth regiment of the line was publicly cashiered for suffering his soldiers to be disarmed, and the men of the regiment were severely reproved. Measures were subsequently taken against a portion of the press, stated to have encouraged the insurrection of the operatives of Lyons; and, the city being placed under military government, and no apprehension being entertained that its tranquillity would be again disturbed, the duke of Orleans and the veteran marshal returned to Paris on Sunday, the 11th of December. Early in the year 1832, a convention was finally concluded between the U. States and France, by which the latter agreed to pay the sum of 25,000,000 of francs to the former, in six annual instalments of 4,166,666 francs each, in full for all claims of the citizens of the U. States for unlawful seizures, captures, sequestrations, or destructions of their vessels, cargoes, or other property, by that government; the former engaging to pay, on its part, the sum of 1,500,000 francs, in six annual instalments, in full of all claims presented by France on behalf of her citizens. Austrian troops having entered the Roman territory in January, for the purpose of maintaining the papal power, the existence of which was threatened by the subjects, a French force was sent to Italy, which occupied Ancona, February 22; but this movement, which bore a menacing aspect, did not disturb the peace of Europe. In the end of March, the cholera made its appearance in France, and, early in April, the prime minister was attacked by it. His death, which took place on the sixteenth of May, made no change in the spirit of the administration, which has, up to the present time, been conducted on the principles professed by Casimir Périer on the thirteenth of March, and carried into practice by him while he continued at the head of the government. The department of the interior was given to M. Montalivet; but no president of the council was named. While it is impossible to deny to the administration of M. Périer the praise of vigor in maintaining order, it is to be regretted that it was not conducted on more liberal and popular principles. The incessant prosecutions of the press, the great number of trials for political offences, and the rigid adherence to a conservative policy, in a country in which so much was to be done to establish a rational, yet full and fair degree of liberty, cannot be too severely condemned. The close of the sessions of the chambers was hastened by the alarm excited by the violence of the disease in Paris, and they were soon after prorogued. Paris was, soon after, again made the scene of bloodshed. On occasion of the funeral of general Lamarque, June 5, the military having attempted to disperse the crowd, skirmishing continued for several days, and the city was declared to be under martial law. The populace were not overpowered without much slaughter, and several distinguished men of the *mouvement* party were arrested and tried by a court-martial; but the court of cassation pronounced their trial to be illegal.—See, on this and other subjects relating to France since the revolution, Sarrans' *Mémoires sur Lafayette* (2 vols., Paris, 1832).—At this distance from the scene of action, we cannot pretend to give any authentic information upon these and more recent transactions. We will merely add here, that, after protracted negotiations with the different parties, the king did not reorganize the cabinet until the end of October, when it was thus formed:—Marshal Soult, president of the council (in place of Périer) and minister of war; the duke de Broglie, minister of foreign affairs, in place of Sébastiani, whose infirm health rendered his retirement necessary; Thiers, minister of the interior, in place of Montalivet; M. Human succeeds baron Louis in the department of finance, and Guizot, Girod de l'Ain in that of public instruction. M. Barthe, admiral de Rigny, and count d'Argout, retain respectively the seals, and the portfolios of the marine, and of public works.—We have now to give some account of the state of French affairs in Algiers. On receiving intelligence of the overthrow of the old dynasty, the army in Algiers immediately declared its adhesion to the new order of things; and, on the seventeenth of August, the tri-colored flag already waved over the Casauba and the forts. General Clausel was appointed to the government of Algiers, in the room of count Bourmont; and public opinion was pronounced in favor of the permanent occupation and colonization of the Algerine territory. General Clausel was instructed, therefore, to reduce to obedience all the provinces dependent upon Algiers, and to promote commerce and agriculture, by encouraging the settlement of European emigrants. A model farm was also instituted to teach the inhabitants the best mode of cultivation; and land was sold to settlers for two and a half francs an acre. The only commercial marts in the territory were Algiers, Oran, Bona, and Bougia or Boujeia: the three last were yet to be occupied. In Oran (with 20,000 inhabitants), which had been restored to the dey of Algiers by Spain, in 1791, business was chiefly carried on by Spaniards. Bona, with a population of 8000 inhabitants, situated near the ruins of Hippo Regius, and Bougia, forty leagues east from Algiers, belonged to the province of Constantine (with a capital of the same name, twenty days march from Algiers), which had not yet been reduced. Upon this long tract of country were neither towns nor villages; and it was therefore necessary, if an expedition were sent out, that it should carry all its supplies. The march led by footpaths over barren mountains, through various tribes, which had maintained their independence even under the regency. Under these circumstances, Algiers could not be made the base of operations, which could be fixed only at Bona or Stora. The beylic of Bona was therefore occupied, and general Clausel also made an incursion into the southern province of Titteri, where he passed the Atlas, and defeated the troops of the bey, on the twenty-first of November. On the twenty-second, Mediah, the ancient Lamida, was occupied, and, on the twenty-third, the bey gave in his submission. But the people were by no means subjected. The bey of Titteri was sent to France, where a pension of 12,000 francs was settled upon him; and the bey of Oran was likewise deposed, and sent to Alexandria. Still, however, the war continued. Mediah was evacuated, Oran abandoned, and it was said that the city of Algiers alone would be retained. But Southern France particularly remonstrated against the abandonment of a colony so important for commerce. General Clausel now organized a corps of irregular Arabian troops (*zuaves*), and determined to give the provinces of Constantine and Oran to two Tunisian princes, who should be tributary to France. But the government was dissatisfied with his measures, and, in February, 1831, declared the treaty which he had made with Tunis, to carry this plan into effect (December 18), to be null, on the ground that he had exceeded his powers. General Berthezène was also appointed to the command of the troops, although Clausel was allowed to retain the title of governor of the colony. The warlike operations were continued during the ensuing spring and summer, and several expeditions were made into the interior, to chastise hostile tribes of Arabs, Bedouins and Cabyles, or Berbers; but, on the approach of the French troops, these wild hordes would desert their villages, and disperse, and then, again collecting, hang upon their rear on their return. In October, Bona fell into the hands of the Cabyles; the colony was supported at the expense of 1,000,000 francs a month, and, instead of proving a granary for Southern France, as had been anticipated, was obliged to draw all its supplies from that country; and the government found itself compelled to support the emigrants who had settled there. In November, the population of Algiers had sunk to 20,000 souls, of whom 5000 were Jews. The French government, therefore, at length, determined to try the effect of a new organization of the administration of the colony: the military and civil authorities were intrusted to distinct officers. On the first of December, the duke of Rovigo (Savary) was accordingly appointed to the military command, and baron Pichon was placed at the head of the civil administration, as civil intendant of the colony. The whole coast, from Constantine to Oran, was subjected to the government of Algiers; and the fortifications of this city itself were to be strengthened by the erection of seven new block-houses. Thus the determination of the French government to retain permanent possession of the new colony, was no longer doubtful, and will certainly be accomplished, unless the state of affairs in Europe should compel France to recall her troops and abandon the African shore. In the beginning of 1832, the number of European colonists in Algiers was about 3000; and towards the close of January, a newspaper, in French and Arabic, was established, under the title of *Moniteur Algérien*. Among the numerous works to which the occupation of Algiers has given rise in France, we mention Renaudot's *Tableau du Royaume et de la Ville d'Algèr* (fifth edition, 1831); Fernel's *Campagne d'Afrique en* 1830 (second edition, 1832); Juchereau de St. Denys's *Considérations statistiques, historiques, militaires, et politiques, sur la Régence d'Algèr* (with a map, 1831).

FREESTONE. (See *Sandstone.*)

FRIULI, DUKE OF. (See *Duroc.*)

FUERTEVENTURA. (See *Forteventura.*)

FUESSLI. (See *Fuseli.*)

FULMINATING GOLD. (See *Gold.*)

FULMINATING POWDERS. (See *Mercury*, and *Silver.*)

FUNDI. (See *Fondi.*)

FURNACES FOR WARMING HOUSES. (See *Stoves.*)

FURZE is accidentally placed before *Fur Trade.*

FYEN. (See *Funen.*)

G.

GALENA. (See *Lead.*)

GALLEASSES. (See *Galley.*)

GAROLE. (See *Murrain.*)

GARNISHMENT. (See *Attachment, Foreign.*)

Garter Snake. (See *Serpent.*)

Gauntlope. (See *Gantlope.*)

Gaznavides. (See *Persia.*)

Genesee Oil. (See *Bitumen.*)

Genlis, madame de, died at Paris, in December, 1830, at the age of eighty-four years.

Georgia Bark. (See *Pinkneya Pubescens.*)

Georgium Sidus. (See *Herschel.*)

Germaine, lord George. (See *Sackville, George.*)

Ghosts. (See *Visions.*)

Giamschid. (See *Jemshid.*)

Giovio, Paolo. (See *Jovius.*)

Girard, Stephen. This singular individual has rendered himself a subject of public interest by his large bequests for public purposes, and deserves a place among those remarkable men who have achieved great things with small means. He was born in the French city of Bordeaux, in the year 1750, of poor parents, and seems to have received no other education than what is implied in the fact, that he learned to read and write while a child. During his long residence in this country, at a later period of his life, he never acquired a sufficient knowledge of the English language to speak it correctly; but the native vigor of his mind supplied, in a great measure, those deficiencies which, to most others, would have been an insuperable bar to success in the world. Among the events of his early youth, he used to speak of the ridicule to which a deformity in one eye exposed him, as a source of great suffering. At the age of ten or twelve years, he went to the West Indies in the capacity of a cabin-boy, and afterwards sailed from New York in the same humble station. At this time, his deportment was highly exemplary; and the master of the vessel under whom he sailed was so much pleased with his fidelity and industry, that he soon after gave him the command of a small vessel, in which Girard made several voyages to New Orleans and other ports. His great frugality, and his success in such trifling speculations as he could then engage in, put it in his power, before a long time, to become part owner of a vessel, in which he continued to sail as master. In 1769, Girard, then only nineteen years of age, established himself in Philadelphia; and, in the course of the next year, he married Polly Lum, the pretty daughter of a calker, then in her seventeenth year, and a servant girl in his neighborhood. This marriage, however, did not prove a happy one, owing to the asperity and violence of Girard's temper; and, at a later period, he sued for a divorce from his wife, who was confined in a lunatic hospital during the last twenty-five years of her life (1790—1815). She bore him only one child, who died in infancy. On the breaking out of the revolutionary war, his commercial operations being interrupted, he took a little shop, and followed the trade of bottler and grocer for several years, when he again entered the West India trade; and from this time (1780) he may be considered a rich man. Though Girard was, in general, morose in his manners, and harsh in his disposition, yet he distinguished himself during the prevalence of the yellow fever in Philadelphia, in 1793, by his active benevolence in attending the sick; and on all occasions he manifested a singular readiness to afford medical advice and personal assistance to such sufferers as came under his notice, while, at the same time, he would never relieve the distresses of his friends or relations, whether of body or of the purse, by pecuniary aid. His next commercial enterprises were in the East India trade; and, as is well known, he was subsequently engaged in banking till the period of his death, in 1831. The following description of his person and manners is taken from the Biography of Stephen Girard, written by S. Simpson (Philadelphia, 1832):—Few men made so bad a first impression upon the spectator as Stephen Girard. His person was altogether unprepossessing. His humble and vulgar exterior, his cold, abstracted and taciturn habits, did not fail to excite in the mind of the superficial observer a feeling approaching to contempt. He resembled a short and square-built old sailor. His wall-eye and the contrast exhibited between his person, his habiliments and his fortune, contributed to complete a picture of the most repulsive kind. He was partially deaf in one ear, and his conversation was disfigured by a broken French dialect. He spoke, with few exceptions, only upon business; and then never said more than was necessary to the proper understanding of his subject. When excited to anger, however, especially among his dependants and workmen, his volubility of tongue, though not couched in the most refined language, was without a parallel. But to compensate for these ebullitions of temper towards his inferiors, he had the art of conciliating them by the most fascinating displays of occasional good nature, which impressed them with the most devoted readiness to serve him. His habits of attending business were extremely regular in his counting-house, and generally so in his bank. On discount days, he almost always entered the bank between nine and eleven o'clock in winter, and six and nine in summer. It was his custom, during the spring and summer months, to spend an hour or two every morning in a garden attached to his bank, where he employed himself in pruning his vines, nursing his fig-tree and dressing his shrubs. He was buried in a Roman Catholic burial-ground, but without any religious ceremonies. His fortune was probably the largest ever left by any individual in the U. States, and is estimated to amount to about eleven or twelve million dollars. It was disposed of in the following manner by his will:—To the Pennsylvania hospital (subject to an annuity of $200 to a female slave, whom he sets free), $30,000; to the Pennsylvania institution for the deaf and dumb, $20,000; to the orphan asylum of Philadelphia, $10,000; to the controllers of the public schools of Philadelphia, $10,000; to the city corporation, to be invested, and the interest to be applied annually to the purchase of fuel for the poor, $10,000; to the society of ship-masters for the relief of distressed masters, their widows and children, $10,000; to the grand lodge of Pennsylvania, $20,000; for a school for poor white children in Passayunk, where his farm was situated, $6000; legacies to individuals, about $120,000; several annuities, amounting to about $4000; to the city of New Orleans, 1000 acres of improved land in Louisiana, and one third of 207,000 acres of unimproved land in the same state, the remaining two thirds being bequeathed to the city of Philadelphia (the value of this land is about $500,000); to the city of Philadelphia, stock in the Schuylkill navigation company, $110,000; for the erection and endowment of a college for poor white male orphans, the sum of $2,000,000, with provision that, should this amount prove insufficient, the necessary sum shall be taken from the residuary fund; to Philadelphia, for certain city improvements, to be invested and the interest annually applied, $500,000; to the commonwealth of Pennsylvania, to be applied to internal improvements by canals, $300,000; to the city of Philadelphia, all his remaining real and personal estate (no part of the former to be sold), estimated at about $8,000,000, in aid of the orphan's college, if needed, improvements of the city, and the relief of taxes.

Glass Snake. (See *Serpent.*)

Glory. (See *Nimbus.*)

Gnidus. (See *Cnidus.*)

Goitre (*bronchocele*); probably a corruption of the Latin *guttur* (throat), called by the Germans, *kropf* (throat); a tumor situated in front of the windpipe, and formed by the swelling of the thyroid gland. (See *Windpipe.*) The goitre is endemic in the valleys of the Alps, and seems to be caused principally by the heat, moisture, and stagnation of the air, produced by the narrow and winding shape of the valleys. It has also been attributed, by some, to the use of coarse and indigestible food, of water charged with lime, and obtained from the melting of snow; but this opinion is now generally abandoned. The disease is sometimes transmitted from the parent to the child, and, when it is hereditary, often exists from birth: when not so, it begins to show itself towards the age of from seven to ten years. It sometimes makes its appearance at a much later period of life, in persons who take up their residence late in regions where it is endemic. Instances of the disease have also been known in other districts; but they are not common. The habit of carrying burdens on the head, violent efforts of any sort, the indulgence of violent passions, childbirth, &c., sometimes appear to be the occasion of its developement. The causes of the goitre are, for the most part, the same as those of cretinism, and it is often found to afflict the same individuals; but the diseases are not to be confounded. (See *Cretinism.*) The developement of the tumor is generally retarded by the prevalence of cold, dry weather, and promoted by warm and damp weather; and it sometimes disappears entirely when the patient leaves the infected district. Various remedies, both internal and external, have been recommended. Ashes of sponge, soap, alkaline and sulphurous waters, and carbonate of soda, have been employed with success. Compression, friction, fumigation, lotions of different kinds, and, in some instances, the knife, have been resorted to; but the use of the latter is dangerous.

Gomara Islands. (See *Comoro.*)

Goosander. (See *Merganser.*)

Göthe died at Weimar, March 22, 1832.

Grammarians. (See *Rhetoricians.*)

Gray Monks. (See *Vallombrosa.*)

Green Snake. (See *Serpent.*)

Greene, Christopher, a lieutenant-colonel in the American revolutionary army, was born in 1737, in Warwick, a town of Rhode Island. When still very young, he was elected a member of the colonial legislature, from his native place, and retained his seat until the commencement of the revolution, when he was chosen a lieutenant in the Kentish guards. Subsequently, in May, 1775, he was promoted to the rank of major in "an army of observation," under the orders of his relative, general Nathaniel Greene. He was soon afterwards appointed to the command of a company in a regiment which formed a part of the army destined to act against Canada, and, at the siege of Quebec, was taken prisoner. In 1777, having been previously exchanged, he was intrusted, by Washington, with the charge of fort Mercer, on the river Delaware, commonly called Red Bank, a post of great importance, where he was attacked by a large detachment of Hessians, under colonel count Donop. He repulsed the enemy, however; and among their slain were Donop himself, and colonel Mingerode, the second in command. For this service congress voted colonel Greene an elegant sword, which, in 1786, was presented by general Knox, secretary of war, to his eldest son. In 1778, Greene was with the army under Sullivan, which, with the aid of a French fleet under D'Estaign, attempted to break up the enemy's post on Rhode Island, but failed. He then returned to headquarters, and continued to serve under the commander-in-chief, until the spring of 1781, when, having been posted on the Croton river, in advance of the army, he was surprised by a corps of refugees, and was barbarously murdered, in the forty-fifth year of his age.

Grégoire, count, died at Paris, in May, 1831.

Gregorian Chant. (See *Music, Sacred.*)

Gross-Glogau. (See *Glogau.*)

Grossular. (See *Garnet.*)

Guanaco. (See *Llama.*)

Guanches. (See *Canaries.*)

Guerrero was taken in arms against the government, and shot, in February, 1831.

Guildford. (See *North.*)

Gum-Tree. (See *Tupelo.*)

Gunnery. In the body of the work, we referred to this head the history of the different kinds of artillery which have been used among different nations. The article intended to have been inserted having been accidentally omitted, we give here the following sketch from the article *Artillery*, in the *Encyclopædia Metropolitana.* We propose, in this article, not to treat of artillery as a science, but simply to describe the several apparatuses, appointments, &c., which constitute what is commonly understood as the artillery of an army, prefacing that description by a historical sketch of the progress and successive changes which have taken place in this important branch of the military art. In the most ancient times, when war was made with quickness and impetuosity, the use of artillery was unknown: the club and the dart were, at this time, the only instruments of attack and defence; and it was probably some time before the bow and arrow were thought of as offensive weapons. As the destructive means of attack were, by the latter invention, made to operate at a distance, corresponding means of defence became necessary; and trunks of trees, interlaced with branches and supported with earth, constituted the first fortification, which was afterwards improved by substituting a wall with a parapet, for shooting arrows at the assailants. Afterwards, the walls were carried higher, and holes left in them of sufficient size only to enable the archers to discharge their arrows effectually upon an enemy. To attack, therefore, with any chance of success, some powerful engine became necessary to batter down the walls: this gave rise to the battering ram, which was probably one of the first engines of ancient artillery. To what date we are to refer the invention of this powerful machine is uncertain. We are informed, in the Second Book of Chronicles, that Uzziah, who began his reign 809 years before the Christian era, "made in Jerusalem engines, invented by cunning men, to be upon the towers and upon the bulwarks, to shoot arrows and great stones withal." It is therefore probable that the ram was at least known in those days, although we have no distinct mention of it till the time of Pericles the Athenian (409 B. C.). To oppose this powerful engine of attack, further means of defence became necessary; and the invention of ballistæ and catapultæ resulted probably from this necessity. But these soon became instruments not only of defence but of attack; for, in the siege of Motya (about 370 B. C.), Dionysius, after having battered down the fortification with his rams, advanced to the walls towers rolled upon wheels, whence he galled the besieged with continual volleys of stones and darts thrown from his catapultæ

(*Ancient Universal History*, vol. vi.) A number of other instances are mentioned soon after this time, in which machines of various descriptions were employed both for defence and attack, of which we may mention, in particular, the siege of Saguntum, by Hannibal (219 B. C.), in which the Saguntines prevented his soldiers from using the battering ram by a continual hurling of darts, stones, and other missiles. From this time, these warlike engines increased, both in number and in magnitude, to an almost incredible extent, of which the reader may form some idea by the inventory that different historians have given us of those found in certain cities, which had been obliged to capitulate to the enemy, and by the enumeration of those which accompanied particular armies. Thus we are informed that Titus employed, in the siege of Jerusalem, three hundred catapultæ, of divers magnitudes, and forty ballistæ, of which the least projected stones of seventy-five pounds weight. And, when the consul Censorius marched against Carthage, and obliged the inhabitants to give up their arms, they surrendered to him two thousand machines proper for throwing darts and stones; and, afterwards, when Scipio made himself master of the same city, there were no less than one hundred and twenty catapultæ of the larger size, two hundred and eighty-one of the smaller, twenty-three of the larger ballistæ, fifty-two of a smaller kind, and an innumerable number of scorpions of different sizes, arms, and missile weapons. Two years previous to this, Marcellus had laid siege to Syracuse, a city proverbially fatal to the armies that attacked it. Archimedes was at that time resident in the city, and, at the earnest solicitation of Hiero, king of Sicily, exerted the powers of his mind in the invention of artillery, and other warlike instruments. Marcellus had brought with him an enormous engine, mounted on eight galleys, called *sambuca*, which Archimedes destroyed by discharging at it single stones of enormous weight, while it was at a considerable distance from the walls. This was effected by ballistæ; but he also employed crows, grapples, and scorpions, by the former of which the Roman vessels were lifted out of the water by the prow, and plunged to the bottom of the sea. It would be useless to record the numerous other sieges which took place between this period and the invention of cannon, where these instruments were employed. We shall therefore now endeavor to present the reader with the description of these several machines, according to the best authorities. At the same time, it must be acknowledged that the account of many of them is so very obscure, that it may be questionable whether they are precisely such as those described by the ancient historians. The ancient artillery may be divided into three classes of machines, namely, first, those intended for projecting bodies; secondly, those for approach and demolition; thirdly, a miscellaneous class, used for various offensive operations. Of the first class, the most important are the ballistæ and catapultæ, which are, by some authors, confounded with each other; but, according to their etymology, ballista (from βαλλω, to shoot or throw) is an engine for propelling stones, called also λιθοβολος, πετροβολος, *petraria*, &c.; while catapulta (in Greek, καταπέλτης, from πελτης, a spear or dart) was an instrument employed to dart forth spears or arrows. The force of the ballistæ was prodigious. The stones cast from them were of enormous weight, and of any form; and, for the further annoyance of the besieged place, they would throw into it from the ballistæ dead bodies of men and horses, heads, and detached limbs. Athenæus mentions one of these ballistæ that threw a stone of three talents, namely, about three hundred and sixty pounds weight. Cæsar employed these machines not only to destroy men, but to batter down strong and high towers. We have already mentioned the machines employed by Titus against Jerusalem, some of which, Josephus states, projected stones of a hundred weight; and Archimedes is said to have cast bodies of twelve hundred pounds, by means of his ballistæ, against the Roman fleet, in his defence of Syracuse. A ballista may be briefly described as a strong frame-work, susceptible of easy separation, for the purpose of conveyance, and then of being rejoined in frame, having on each side a toothed wheel. The wheels have each a strong cross-piece. A strong cord, well stretched, passes several times from the cross-piece of one wheel to that of the opposite wheel, and forms thus several intersecting twists, at the centre of one of which is inserted the handle or stem of a capacious spoon. The wheels are turned by means of pinions, and the cords fastened to the cross-pieces are made to twist more and more about each other. When, by this process, the twisted cords have received a sufficient tension, the wheels and pinions are retained in their places by the application of a pall or rachet. This done, the stem, which has waxed cord coiled closely about it to give it additional strength, is brought down to the horizontal position by means of a windlass, and retained there by another pall or detent. In this state of things, the body which it is intended to throw from the ballista, is placed in the cavity of the spoon. At a given word, the detent is struck away with a mallet, and the stem, obeying the enormous elastic force which now acts upon it, remounts, and discharges the projectile with great impetuosity. At the moment of the discharge, the stem strikes against the frame at a point where, to soften down the shock, a thick horse-hair cushion is placed. The machines called by the Romans *tormentum* were only varieties of the ballista, and served to project stones and other ponderous masses. According to Vitruvius, the cords employed in these machines were made sometimes of hair, at others of the bowels of animals, prepared like our catgut. All were not twisted by the same process, but sometimes by means of a windlass, at others by toothed wheels. The ultimate effects, however, were the same in all cases.—*Of the Catapultæ.* These, as we have before observed, were employed in throwing darts or arrows, which, it is said, were sometimes poisoned, and at others set on fire. A catapulta of the smaller kind consists merely of an immense bow of elastic wicker work, placed on a suitable carriage, and having its upper part drawn down by the force of several men applied to a strong rope. Several arrows are lodged upon a suitable frame, and at different elevations. The tightened cord being set at liberty by drawing out a pin, the bent surface, recovering itself by its natural elasticity, advances to its original vertical position, and thus drives before it all the arrows with considerable velocity. This kind of catapulta is mentioned by Diodorus Siculus, as being employed at the siege of Cyprus. Catapultæ of the larger kind were much more powerful, and were used to shoot darts and arrows of great length and weight. It is not unaptly assimilated to a broken bow, although there is this difference, that, in the latter, the elastic force resides in the bow itself, whereas here, as in the ballista, the elastic force is in the twisted cords, between which the two arms are inserted, not vertically, as in the stem of the ballista, but horizontally. At the extremity of the two arms is attached a strong rope. The twisted cords receive their tension by means of wheel work, and are kept at the requisite twist by means of detents, as in the ballista. The arms are also strengthened by ligatures of waxed cord, as in the latter machine. The impulsive energy of these machines far exceeds the ideas we should form of them from their description. It is said that Montfaucon possessed a small model of a catapulta only five inches in length, which projected its dart to the distance of four hundred feet; and Folard, the learned editor of Polybius, had a model only a foot in each dimension, which propelled its dart with such force as to cause it to enter and remain in hard freestone at the distance of thirteen hundred feet. Cæsar also relates that, at the siege of Marseilles, the besieged propelled, from the top of their walls, beams of twelve feet long, armed at one end by pointed iron heads, which pierced four ranks of stout hurdles, and then stuck firmly into the earth.—*Of the Scorpion.* This is another of the propelling machines of the ancients, and is probably of anterior date to those we have been describing, being far inferior to them in its action, although still a very powerful engine. The propelling power was produced by the descent of the weight placed at the shorter arm of the machine, which raising the longer arm, the stone was delivered from the sling attached to it with a very considerable force; but, as we have stated above, by a very inferior one to that produced by the twisted cord in the ballista and catapulta. It is needless to add that the stone being discharged, the long arm was drawn down by manual strength, and the machine recharged by another stone. This is by some authors called a *fundiballe.*—The *arcoballista* is a smaller propelling apparatus, which might be worked by one man. It is little more than a fixed bow, with a simple mechanical contrivance for bringing back the line. The above are the principal machines which the ancients possessed for distant means of annoyance. It still remains for us to describe those employed on a near approach to an enemy's works for the demolition of the same, and the opposing engines of the besieged.—*Machines of Approach and Demolition. Of the Battering Ram.* The ancients employed two different machines of this kind, an account of which will be found under the head *Battering Ram.*—*Movable Towers, Tortoises,* &c. The movable towers employed by the ancients in their sieges, and which they called *helepoles*, were often of an astonishing magnitude. Vegetius describes them as being formed of strong planks. To preserve them from risk of fire thrown from the walls of the besieged place, they were covered with raw hides, or with pieces of woven horse-hair. Their height was proportional to the dimensions of their bases, which were sometimes thirty feet square, and their height forty or fifty feet. Sometimes their height was still greater, that they might be above the walls, and even above the stone towers of the city. They were supported upon several small wheels, by means of which they might be moved from place to place, notwithstanding their enormous size and weight. It was generally reckoned that the besieged place was in imminent danger whenever the besiegers had succeeded in placing one of these near the walls. The helepolis was supplied with ladders, by which to mount from stage to stage; and each stage presented its particular means of attack. In the lower one, there was commonly a ram; and the middle stage, or a higher one, was furnished with a bridge, made of mutually-intersecting levers, which could be easily projected out, and thereby form a communication between the tower and the wall. Sometimes baskets, fixed to projecting levers, carried men, who were let down upon the wall. On the upper stages were soldiers armed with halberts, and archers, who continually played upon the besieged. Vitruvius states that the weight of the helepolis brought against Rhodes by Demetrius weighed 260,000 pounds, and that to man and manœuvre it, employed 3400 soldiers.—The *tortoise* was a kind of moving sheet, used to defend the assailants in their advance upon the place. These were also of great magnitude. One of those employed by Cæsar, at the siege of Marseilles, was sixty feet long, and served to cover the space between the helepolis and the city wall. In some instances, a long rank of these was placed end to end, and served as a complete protection to the soldiers. They were covered, as we have already said, with raw hides, or with moistened horse-hair, to protect them from the fire of the besieged.—*Miscellaneous Machines. Of Crows* (*corvi*) *and Cranes.* As, in the application of the engines last described, it was necessary for the besiegers to approach close under the walls of the besieged city, it was natural that the latter should attempt a means of annoyance, or defence against their enemy, which might counteract their efforts. This probably gave rise to the machines we are about to describe, which were of different kinds, some being used in sieges, and others in engagements at sea. The description we have of these engines, and of the effects produced by them, is scarcely credible. Plutarch informs us that, when Marcellus had advanced his galleys close under the walls of Syracuse, Archimedes directed against them enormous machines, which, being projected forward, there were let down suddenly from them large beams, from which were suspended long vertical arms of rope, terminated with grappling hooks, which, laying hold of the vessels, and rapidly elevating them, by the operation of counter weights, upset and sunk them to the bottom of the sea; or, after raising them by their prows, and setting them as it were on their poops, plunged them endwise into the water. Others, it is said, he swung round towards the shore by the application of his cranes, and, after whirling them in the air, dashed them to pieces on the rocks beneath. Although it is impossible not to suspect some degree of exaggeration in these statements, yet we cannot, at the same time, doubt that very powerful means of this kind were employed in this celebrated siege, in which Archimedes, the prince of Grecian mathematicians, performed an important part, and where he at length fell beneath the sword of one of the soldiers of the conqueror.—The *telleno* was a machine employed for raising a few soldiers higher than the top of the enemy's wall, to ascertain what was going on within them, and sometimes for taking possession of them, and thus facilitating the escalade. In the former instance, it was formed by a great pile driven into the ground, which served as a fulcrum to a long lever, which was placed across it and balanced. At one of its extremities was a light wooden or wicker case, capable of holding a certain number of men, who, when the opposite end was drawn down by cords, were raised so as to be enabled to look over the walls, or to mount upon them. Others were mounted on carriages.—*Of modern Artillery.* At what time gunpowder was first employed for the purposes of war, is very uncertain; but it is pretty evident that cannon were in use very early in the fourteenth century; but they were, of course, of the rudest and most uncultivated character. (See *Gunpowder.*) Their first denomination was *bombarde*, from βομβος, or *bombo et ardore*, on account of the great noise produced by the discharge.

In the early use of these machines, they were employed like those they supplanted, and which we have described, in throwing enormous stones. They were therefore of immense calibre; and, as the means of boring iron masses of such magnitude were then wanted, they were necessarily formed of iron bars, fitted together lengthwise, and confined by strong hoops of iron. Sometimes the bars were soldered together; but, still, the hoops could not be dispensed with. There are some specimens of these early cannon preserved as curiosities in the repository and royal arsenal at Woolwich. All the ancient cannon are unnecessarily long and clumsy; and we may easily imagine that their carriages and appointments were equally heavy and unmanageable. We are informed, indeed, by Guicciardini, in the first book of his history, that so cumbrous and unmanageable were the cannon in the fourteenth and fifteenth centuries, that they could only be discharged at considerable intervals, namely, two or three times in a day; so that the besieged had sufficient time to repair, at their leisure, the damage which they had sustained; and it not unfrequently happened that the pieces burst, and thus did more injury to those who employed them than to those they were intended to annoy. In 1453, when Mahomet II battered the walls of Constantinople, he is said to have used bombards which projected masses of twelve hundred pounds weight; and even during the late wars, the Turks employed enormous stone mortars to protect the passage of the Dardanelles. To trace, however, the various changes that have taken place in the construction, management, &c., of these arms, would far exceed the limits of this article. We must pass, therefore, from these early applications of cannon to the purposes of bombardment, to the time when they began to be employed in the open field, at which period they must have undergone considerable changes and improvements. The English appear to have been the first to employ cannon in the field; and, as early as 1346, at the celebrated battle of Cressy, five of them were placed on a small hill near that village, and which are said to have greatly contributed to the attainment of that victory. Cannon, however, were not cast in England till some time in the sixteenth century, namely, brass cannon about the year 1535, and those of iron in 1547. We read, indeed, of brass guns of a much earlier date; but whether they were formed of bars, or in what other way they were constructed, we are not informed. Notwithstanding the improvements thus introduced in the formation of cannon, yet they were still, from a mistaken idea of the necessity of great length, exceedingly large and unwieldy. Louis XII had one cast at Tours which carried a ball of one hundred pounds. One of these extraordinary cannon was taken at the siege of Dien, in 1546, by don John de Castro, and was very lately preserved in the castle of St. Julian de Barra, near Lisbon. The length of it is twenty feet and seven inches; its diameter, in the middle, is six feet and three inches; and it threw a ball of one hundred pounds. There is a Hindoostan inscription upon it, which says it was made A. D. 1400. Although, during the sixteenth century, the size of cannon was considerably diminished, and a more tasteful form given to their exterior, still some few were made of what we now consider a prodigious magnitude, highly ornamented, and bearing a variety of mottoes, and dignified with names of various import. (See *Cannon.*)—*Artillery for the Field.* This was formerly divided into three classes, namely, battalion guns, artillery of the park, and horse artillery. The battalion guns included all the light pieces attached to regiments of the line, which they accompanied in all their manœuvres, to cover and support them. In the English service, there were two six-pounders attached to each battalion.

		Per Battalion.
The French	had	two four-pounders.
The Danes	"	two three-pounders.
The Austrians	"	three six-pounders.
The Prussians	"	two six pounders, first line.
" "	"	two three-pounders, second line.
The Hanoverians		two three-pounders.

This practice is, however, now discontinued in the British service; and, in lieu of battalion guns, the artillery is formed into brigades of foot, and troops of horse artillery, the former being attached to the infantry, and the latter to the cavalry. This change has taken place on the supposition that the condensed fire of these brigades and troops produces a much greater effect than could be expected from the divided action of battalion guns. The brigades of foot artillery have either five medium twelve-pounders, and a heavy five and a half inch howitzer; five nine-pounders, and a heavy five and a half inch howitzer; five long six-pounders, with a heavy five and a half inch howitzer; five light six-pounders, with a light five and a half inch howitzer; or six three-pounders, when acting in a mountainous country. The nine-pounders, however, were much in use in the late campaigns, as they answered better to the French eight-pounders, to which they were generally opposed. —*Horse Artillery*. A troop of horse artillery in the British service has generally five light six-pounders, and one light five and a half inch howitzer. The French have commonly eight-pounders, and a six-inch howitzer attached to their troops of horse artillery.—*Park of Artillery*. This, in addition to the requisite proportion of light guns, to replace such as may be disabled or taken, contains some ordnance of a heavier calibre; but the nature and quantity of it depend on particular circumstances. These are eighteen-pounders, twelve-pounders, and eight-inch howitzers, for the purpose of forming batteries of position; defending entrenched posts; breaking down bridges; dislodging an enemy from temporary works, or old castles, fortified in order to impede the march of an army for a short time, &c. These do not always follow an army in all its movements; but still they are generally so placed that they may be brought up in a short time when circumstances require it. The park also should contain spare carriages, stores and ammunition for every description of ordnance to be employed; a ponton or boat equipage, and a movable magazine in wagons or carts for infantry and cavalry.—*Artillery for a Siege*. This of course contains, besides a number of pieces of the kind we have been describing, a quantity of heavy ordnance, the particular number of which, however, depends upon circumstances; but the proportion of the different kinds is generally something like the following, namely: The number of heavy guns being determined upon, the number of

Mortars (8-in. to 13-in.),	about one third.
Small mortars, “	about one fourth.
Heavy howitzers, “	about one eighth.

The following are the numbers and calibre of the ordnance demanded for the siege of Lisle, by the late sir William Congreve:—

6 twenty-four-pounders.
28 ten-inch mortars.
8 eight-inch mortars.
20 five and a half inch mortars.

These numbers, it will be perceived, do not exactly agree with the above rule; and, indeed, no rule can be made to apply generally to all cases.—The artillery for the defence of a garrison is very similar to that employed in the siege.

Gymnotus Electricus. (See *Electrical Eel*.)

H.

Hadrian. (See *Adrian*.)

Halcyon. (See *Kingfisher*.)

Halep. (See *Aleppo*.)

Halifax, Marquis of. (See *Saville, George*.)

Hardwicke, Lord. (See *Yorke, Philip*.)

Harrier. (See *Hound*.)

Harvest Fly. (See *Locust*.)

Harvest Moon. (See *Moon*.)

Hauberk. (See *Mail, Coat of*.

Haugwitz, count, died at Vienna in February, 1832.

Hauser, Kaspar. On the twenty-sixth of May, 1828, a youth of about sixteen or seventeen years of age, who was unable to speak, and seemed almost incapable of walking or standing, was found in the streets of Nuremberg, by one of the citizens of that place. In his hand was a letter addressed to the captain of one of the cavalry companies there. He was entirely ignorant of the uses of different objects, had little or no command over his hands and feet, and, when spoken to, he understood nothing that was said to him, and only replied by a few words of unintelligible gibberish. As he appeared hungry and thirsty, food and drink were brought to him; but, on tasting a bit of meat that was offered to him, he rejected it with signs of disgust, which were repeated on his taking a few drops of beer into his mouth. On a pen being put into his hand, he wrote, in plain letters, Kaspar Hauser. The letter, which we have before mentioned, was dated "Bavarian Frontiers, place nameless:" its purport was, that the boy had been left with the writer, who was a poor laborer, in October, 1812, and who, not knowing his parents, had brought him up in his house, without allowing him to stir out of it. A note, accompanying this letter, contained these words: "His father was one of the light cavalry: send him, when he is seventeen years old, to Nuremberg, for his father was stationed there. He was born April 30, 1812. I am a poor girl, and cannot support him: his father is dead." The lad was about four feet nine inches in height, well formed, and stout; his countenance destitute of expression, and his eyes staring and heavy; his hands delicately formed, and his feet did not appear to have been subjected to the usual pressure of shoes. His dress was chiefly old and coarse, but his jacket had the appearance of a frock coat, with the skirts cut off, and his pantaloons were of a finer quality than those worn by peasants. The anatomy of his legs, as appeared by a subsequent examination, presented some singular deviations from the common formation. At Nuremberg, he was treated with kindness, and was gradually taught the use of language. July 11, he was visited by Von Feuerbach (q. v.), from whose pamphlet *Kaspar Hauser, Beispiel eines Verbrechens am Seelenleben des Menschen* (of which a translation has been published in Boston, 1832), we have extracted the contents of this article. Hauser was not then able to give an intelligible account of himself; but he was soon after removed to the house of a school-master in the place, where he gradually acquired the knowledge of things and of language. In the summer of 1829, he was able to give, in writing, his recollections of events previous to his "coming into the world at Nuremberg," as he expressed himself. It had already been mentioned that he was preparing such an account, when, in the month of October, he was found lying in the cellar, covered with blood, and with a gash on his head, which, when he had recovered from the effect of the wound, he said had been inflicted by a black man; but no clew to this affair has yet been discovered. The account of himself above alluded to, as given by Feuerbach, is, that he had always been confined in a dark hole, in which he had always sat upright, and had never seen any person or thing, nor heard any sound; but when he awoke from sleep, he used to find a loaf of bread and a pitcher of water by him. The man who came to him had, however, not long before removing him, placed some paper before him, put a pencil in his hand, and taught him to make certain characters, which he afterwards amused himself with copying, without attaching any signification to them. Finally, the man had carried him out of his prison; but he appeared to have little acquaintance with any thing that happened after that event, till he was left in Nuremberg. Such is the singular story related concerning Kaspar Hauser, of which the reader will find further details in the work already mentioned.

Heather Shield. (See *Shield.*)

Hectogramme. (See *Gramme.*)

Helsingoer. (See *Elsinore.*)

Helvig, Amalia von, died in 1832.

Hemicrania. (See *Megrim.*)

Hemispheres of Magdeburg. (See *Guericke.*)

Hen. (See *Cock.*)

Hertogenbosch. (See *Bois-le-Duc.*)

Hesperia. (See *Italy.*)

Hieumeni. (See *Abbots.*)

Hinnom. (See *Tophet.*)

Hoar Frost. (See *Freezing.*)

Hobart, John Henry, doctor of divinity, late bishop of the Protestant Episcopal church in the state of New York, was born at Philadelphia, on the fourteenth of September, 1775. After receiving an elementary education in that city, at the Episcopal academy, and in the college, he entered the university of Princeton, at the age of fifteen, where he graduated in 1793, with the first honors of his class, and, for several years, discharged the duties of a tutor. In 1798, he was admitted to holy orders in Philadelphia, by bishop White, who had previously directed his theological studies. He then entered upon his ecclesiastical duties, and officiated successively at Oxford and Lower Dublin, in the county of Philadelphia; at New Brunswick, New Jersey; and at Hampstead, Long Island. In 1800, he was appointed assistant minister of Trinity church, in the city of New York, and, in 1811, he was consecrated bishop of the New York diocese. The duties of this office he continued to discharge, with unremitting zeal, until the period of his death, which occurred on the twelfth of September, 1830, at Auburn, Cayuga county, New York, in the fifty-fifth year of his age. Bishop Hobart was a man of an energetic spirit, and great activity, and an able and learned divine. The Episcopal church is indebted to him for various compilations—the Companion for the Altar; Companion for the Festivals and Fasts of the Protestant Episcopal Church; the Clergyman's Companion; Companion for the Book of Common Prayer; Collection of Essays on Episcopacy; the Christian's Manual of Faith and Devotion. His original works are the Apology for Apostolic Order, and two volumes of sermons, besides numerous sermons and tracts published in a separate form. Much of his time, during five years, was spent in editing and greatly enlarging D'Oyly and Mant's Commentary on the Scriptures. The two volumes of sermons were published in

London, when he was on a visit to that city; and there, also, was first published a sermon which he preached to the congregation of English Protestants, in Rome, on Easter Sunday, the third of April, 1825, on occasion of a collection for the benefit of the Vaudois, or Waldenses, in Piedmont. The opinions of bishop Hobart, both as to doctrine and discipline, were positive and high-toned; but he won, from a very numerous and wide acquaintance, a degree of personal regard and honor which few prelates of his age had acquired.

HOGNOSE SERPENT. (See *Serpents*.)

HOLIDAYS. (See *Festivals*.)

HOLOFERNES. (See *Judith*.)

HOLY THURSDAY. (See *Ascension-Day*.)

HONEYSTONE. (See *Mellite*.)

HOODED SNAKE. (See *Cobra da Capello*.)

HOOKAH. (See *Pipe*, *Smoking*.)

HOPE, Thomas, died in 1831. Just before his death appeared his Essays on the Prospects of Man (1831, 3 vols., 8vo.).

HORN MUSIC, RUSSIAN. (See *Russian Hunting Music*.)

HORSE-RACING. (See *Races*.)

HORSE-SHOES. The practice of affixing plates or pieces of metal to the feet of horses, which constitutes so much of the blacksmith's business, is generally allowed to be of great antiquity; though at what period it was first introduced appears by no means certain. Ancient classic writers frequently mention the defences of horses' feet, in terms similar to those used when they speak of shoes in general: they likewise mention them as being of metal. We are told by Suetonius that Nero, when he took short journeys, was always drawn by mules which had silver shoes; and those of his wife Poppæa, according to Pliny, had shoes of gold. There is nothing, however, deducible from the Roman writers, which can fairly authorize the belief, that in the former case any thing more is meant than mere chirurgical bandages, or socks of some kind; nor in the latter, that the shoes of precious metal were any thing else than thin slips, attached over the hoof by way of ornament, and removable at pleasure: at all events, there is no ground to suppose that they were connected with soles permanently fastened with nails to the corneous substance of the foot, according to the method of modern times. The figures on ancient monuments afford still feebler evidence of the very early origin which some authors have claimed for the art of nailing metal shoes upon the feet of horses. According to Beckmann, the Greek word σελιναια, which, he is convinced, signifies *horse-shoes*, such as are used at present, occurs for the first time in the ninth century, in the works of the emperor Leo; and this antiquity of horse-shoes, he adds, is in some measure confirmed by their being mentioned in the writings of Italian, English and French writers of the same century. The word occurs, in the tenth century, in the *Tactica* of the emperor Constantine, where he says, that a certain number of pounds of iron should be given out from the imperial stores to make *selenaia*, and other horse furniture. Eustathius, who wrote in the twelfth century, uses the same term in the same sense as that in which it is here interpreted. "When one considers," says Beckmann, "that the σελιναια, or σεληναια, belonged to horse furniture; that they were made of iron; that, as Eustathius says, they were placed under the hoofs of the horses; that the word seems to show its derivation from the moon-like form of shoes, such as those used at present; and, lastly, that nails were necessary to these *selenaia*,—I think we may venture to conclude, without any fear of erring, that this word was employed to signify horse-shoes of the same kind as ours; and that they were known, if not earlier, at least in the ninth century." The same author mentions that, when the marquis of Tuscany, one of the richest princes of his time, went to meet Beatrix, his bride, mother of the well-known Matilda, about the year 1038, his whole train were so magnificently decorated, that his horses were shod not with iron, but with silver. The nails even were of the same metal; and when any of them dropped out, they belonged to those who found them. The marquis appears to have imitated Nero: but this account, which is in verse, may be only a fiction. It is well known, however, that an ambassador to the court of France indulged in a similar folly, to attract admiration for his opulence and generosity; having had his horse shod with silver shoes so slightly attached, that, by purposely curvetting the animal, they were shaken off, and allowed to be picked up by the populace! The following passage on this subject is likewise from Beckmann: "Daniel, the historian, seems to give us to understand that, in the ninth century, horses were not shod always, but only in the time of frost, and on other particular occasions. The practice of shoeing appears to have been introduced into England by William the Conqueror. We are informed that this sovereign gave the city of Northampton, as a fief, to a certain person, in consideration of his paying a stated sum yearly for the shoeing of horses; and it is believed that Henry de Ferrers, who came over with William, and whose descendants bear in their arms six horse-shoes, received that surname because he was intrusted with the inspection of the farriers;"—*ferrière* (from *ferrum*, iron) signifying, in French, a bag of instruments used in the shoeing of horses. That the practice of shoeing horses in England may have become more common after the conquest may easily be conceived; and it is certain that a number of smiths came over with the Norman army: but that the thing was not new at the time is clear, from the historical fact, that Welbeck, in Nottinghamshire, the very estate on which, at this day, stand the capacious stables formerly belonging to that famous writer on horsemanship, the duke of Newcastle, was, before the conquest, the property of an old Saxon tenant *in capite*, named Gamelbere, who, according to Dugdale, held of the king two *carucates* of land, by the service of shoeing the king's palfrey on all four feet, with the king's nails, as oft as the king should lie at his manor of Mansfield; and if he should lame the palfrey, then he should give the king another palfrey of four marks price. Before the invention of metal shoes, considerable attention, as may well be supposed, was paid to the strengthening and hardening the hoofs of horses, especially of those employed in war; and various whimsical methods of producing these effects are still extant in the works of those who have treated on the ancient *ménage*. Notwithstanding, however, that attention, there is but too good reason to believe, from incidental passages in the writers of early times, that dreadful havoc must frequently have taken place amongst, and dreadful sufferings have been endured by, those noble animals, of whose preservation, even in military service, so much care is taken in modern times, and to which preservation the art of shoeing especially conduces. That the horses of the ancients were never shod in war, is the opinion of Beckmann; nor does it appear that conclusive evidence to the contrary has been adduced. When Mithridates was besieging Cyzicus, he was obliged to send his cavalry to Bithynia, because the hoofs of the horses were entirely spoiled and worn out. In the Latin translation of Appian, it is added, that this was occasioned by the horses not having shoes; but there are no such words in the original, which seems rather to afford a strong proof that in the army of Mithridates there was nothing of the kind. The case seems to have been the same in the army of Alexander; for we are told by Diodorus Siculus, that with uninterrupted marching the hoofs of the horses were totally broken and destroyed. An instance of a like kind is to be found in Cinnamus, where the cavalry were obliged to be left behind, as they had suffered considerably in the hoofs; "an evil," says the historian, "to which horses are often liable."

Hospitalers. (See *John, St., Knights of.*)

Houdon. This artist died in 1828.

House Snake. (See *Serpent.*)

Huber died at Geneva, in 1832, at the age of eighty-one years.

Hulans. (See *Ulans.*)

Humphreys, David, LL.D., minister of the U. States to the court of Spain, was the son of the reverend Daniel Humphreys, of Derby, Connecticut, and born in 1753. He was educated at Yale college, and graduated in 1771, with a distinguished reputation for talents, energy of character, and scientific and literary acquirements. Soon after the commencement of the revolutionary war, he entered the American army, and was successively an aid to generals Parsons, Putnam and Greene. In 1779, he was appointed one of the aids of Washington, and remained in his family till the close of the war, enjoying his high confidence, friendship and patronage. He left the army with the rank of colonel. When Franklin, Adams and Jefferson were, in 1784, appointed commissioners for negotiating treaties with foreign powers, he was chosen secretary of the legation, and attended them in that capacity to Paris and London. In 1791, he was sent ambassador to the court of Lisbon, and, in 1797, appointed minister plenipotentiary to that of Madrid. He concluded treaties of peace with the bey of Tripoli and the dey of Algiers. On his return from Spain, he transported to New England 100 sheep, of the Merino race, which proved a valuable acquisition to the agricultural and manufacturing interests. While in the military service, he published a patriotic poem, addressed to the American armies, and, after the war, another, on the happiness and future glory of America. In 1789, he gave to the public the Life of General Putnam, and, during his residence in Europe, published several poems on subjects connected with the American revolution. After his return to the U. States, he resided chiefly in Connecticut, and, in 1812, was appointed to the command of the veteran volunteers of that state, with the rank of general. He died at New Haven, Feb. 21, 1818, aged sixty-five years.

HYDROCELE. (See *Dropsy*.)

HYDROCYANIC ACID. (See *Prussic Acid*.)

HYDROMETRA. (See *Dropsy*.)

HYDROSTATIC BED. This is one of those happy inventions that have sprung from the practical application of science in the wants of life. It not only delights us by its ingenious novelty and great simplicity, but commands a still deeper interest when we consider the relief which it will afford in innumerable cases of protracted suffering, where hitherto the patient has been considered in a great measure beyond the power of the physician. In all diseases where the system has been much enfeebled and the patient long confined to bed, the circulation of the blood goes on so imperfectly, in some of those parts of the body that are more immediately and more constantly subjected to pressure, that they frequently mortify, or lose their vitality. The dead parts thus formed become a continual source of irritation, often exhausting the patient's strength by a slow decay, where otherwise every hope might have been entertained of recovery; and when he does survive, they are removed solely by the slow process of ulceration, during a tedious convalescence. The hydrostatic bed will mitigate or entirely remove these evils; and even when they appear in a milder form, still it becomes of the utmost value, from the certainty with which those sources of irritation are removed, that arise from the inequality of pressure in a common bed, and prevent that refreshing sleep which it is always such an object to procure. This bed is constructed in the following manner:—A trough six feet long, two feet six (or nine) inches broad, and one foot deep, is filled to the depth of six or seven inches with water, and a sheet of water-proof India rubber cloth placed upon it. It is fixed and firmly cemented at the upper part of the trough, being of such a size as to hang down loosely in the inside, and floating on the surface of the water, which admits, therefore, of the most perfect freedom of motion. A light hair mattress is placed upon the water-proof cloth, upon which the pillow and bed-clothes are to be placed. When the patient rests upon it, he at once experiences the surpassing softness of the hydrostatic bed: he is placed nearly in the same condition as when floating in water, the fluid support being prevented from touching him, however, by the peculiar manner in which it is sealed, hermetically, as it were, within the water-proof cloth, and by the intervening mattress. The hydrostatic bed was invented, a short time since, in London, under the following circumstances, by doctor Arnott, the author of the Elements of Physics:—A lady, who had suffered much, after a premature confinement, from a combination and succession of low fever, jaundice, &c., and whose back had sloughed (mortified) in several places, was at last so much exhausted, in consequence of the latter, that she was considered in the most imminent danger. She generally fainted when the wounds in her back were dressed, and was passing days and nights of uninterrupted suffering, as the pressure even of an air-pillow had occasioned mortification. Doctor Arnott reflected that the support of water to a floating body is so uniformly diffused that every thousandth part of an inch of the inferior surface has, as it were, its own separate liquid pillar, and no one part bears the load of its neighbor; that a person resting in a bath is nearly thus supported; that this patient might be laid upon the face of a bath, over which a large sheet of the water-proof India rubber cloth was previously thrown; she being rendered sufficiently buoyant by a soft mattress placed beneath her; thus would she repose on the face of the water, like a swan on its plumage, without sensible pressure any where, and almost as if the weight of her body were annihilated. The pressure of the atmosphere on our bodies is fifteen pounds per square inch of its surface, but, because uniformly diffused, is not felt. The pressure of a water bath, of depth to cover the body, is less than half a pound per inch, and is similarly unperceived. A bed having been made on this plan, and the patient placed on it, she was instantly relieved in a remarkable degree, and enjoyed a calm and tranquil sleep; she awoke refreshed; she passed the next night much better than usual, and on the following day, it was found that all the sores had assumed a healthy appearance: the healing from that time went on rapidly, and no new sloughs were formed.

When the patient was first laid upon the bed, her mother asked her where the down pillows, which she before had used, were to be placed; to which she answered, that she knew not, for that she felt no pain to direct; in fact, she needed them no more.—The hydrostatic bed will be useful, not merely in extreme cases, such as the above, but also in every instance where there is restlessness or want of sleep, from the irksome feeling communicated by that inequality of pressure which is necessarily perceived in every common bed, and to which the body becomes so remarkably sensible, when fatigued or enfeebled, as when suffering from disease. The sensation which is experienced by a person reclining on a hydrostatic bed is uncommonly pleasing. It is easy to change the position with a very feeble effort. The patient also can always take a little exercise at pleasure, with the slightest exertion, from the facility with which the water can be moved—a circumstance which will prove highly grateful to those who have been long confined to bed.

Hydrothorax. (See *Dropsy.*)

Hydrus. (See *Serpent.*)

I.

Iconography. (See *Icon.*)

Ideology. (See *Language.*)

Idyl. (See *Pastoral.*)

Ilmenite. (See *Titanium.*)

Images, Adoration of. (See *Iconolatry,* and *Iconoclasts.*)

Imbossing. (See *Embossing.*)

Incarnation. (See *Granulation.*)

Indemnity Bill. (See *Law of Exception.*)

Inertia. (See *Mechanics.*)

Infanticide. Parental affection seems so deeply rooted in mankind, by a wise provision for the protection of the offspring, that, without actual evidence, it would be difficult to credit the extent to which infanticide has extended. It is said, by Krascheninikow, that there are females in Kamschatka who use herbs and conjurations to prevent conception, and that they procure abortions by means of poisonous medicines, wherein they are assisted by skilful old women. Mackenzie, the traveller across the North American continent, affirms that the women of the Knistenaux frequently procure abortion, to avoid the distress consequent on taking care of and maintaining their children. The Eskimaux, inhabiting the shores of Hudson's bay, according to Ellis, constrain their wives to obtain frequent abortions for the same cause, by means of an herb common in that country; and an older author, Denys, says, that if a woman of North America became pregnant while suckling her child, she obtained abortion; alleging, that nursing one at a time was enough. Other examples might be given; for procuring abortion is common over the world, and must, to a certain extent, prevail where misfortune or disgrace attends the birth of the offspring. There is too great reason for considering these motives as the cause of infanticide, where the child is actually born. The instances of it are innumerable, though arising also from different causes. Among the inhabitants of the Kurile islands, it is customary to destroy one of twins. The American Indians, in the neighborhood of Berbice, are said to do so, from believing that the birth of two children proves the infidelity of the mother. Kolben informs us, that the ugliest of Hottentot female twins is put to death, under the pretext that a mother cannot suckle two females at once. At least one of twins was wont to be destroyed with the Kamtschadales; and in New Holland, the weakest and lightest is quickly suffocated by the mother. As there is greater difficulty experienced in supporting feeble and sickly children, or those laboring under prominent personal imperfections, so the parents have had less hesitation in bereaving them of existence. Diodorus relates, that all deformed children in Taprobana, which we suppose is Ceylon, were put to death. Quintus Curtius says the same of those in the kingdom of Sophitus. Promising children were reared in Sparta; the others were destroyed; nor could parents spare those whom they chose, as they were submitted to the examination of certain persons, and, if weak or deformed, were thrown into a cavern. Gemelli Careri was told in Paragoa, one of the Philippine islands, that children born with imperfections, which would apparently disable them from working, were put alive into a hollow cane, and buried. These cruel expedients must be viewed as the result of necessity rather than of choice; because, in countries where each has to depend on his own personal exertion for a precarious subsistence, there is no room to provide for the helpless. It has even been seen, that, by a barbarous custom, originating from a similar source, when a man perished, his widow and orphans were put to death; not from the desire of shedding blood, but because the survivors had no means of supporting them. In Greenland, when the mother of an infant at the breast died, the child was buried along with her, if the father and relations could not find a nurse. At the present day, it seems an invariable practice of the savages of New Holland to inter the sucking infant in the same grave with its departed mother; nay, the father is the first to heap the earth over the bodies of both. No concern is testified by the relatives for its fate. They seem satisfied that this is what ought to be done; for their own helpless condition deprives them of the means of providing for a being still more helpless than themselves.—The sources of infanticide may, in general, be traced to necessity, superstition, the love of pleasure, and shame. In most countries, it is the female offspring which is doomed to destruction, while the males are spared: thus, if the twins of the New Hollander be of a different sex, it is the daughter alone that perishes. Dobrizhoffer relates, that he has known mothers among the Abiponians, a South American tribe, who destroyed the whole offspring as soon as they were born; but others more commonly spared the males than the females. The ancient Arabians, especially those of the tribes Koreish and Kendah, were accustomed to bury their daughters, from the apprehension of inability to provide for them, as also, it is said, from the grief which would be felt on their becoming captives, or from their immoral conduct. By the injunctions of Mohammed, the practice is supposed to have been abolished in Arabia. Probably it never was universal there. As the British dominions extended to the north-west of the Indian peninsula, a certain race, called Jarejahs, was found in the province of Guzerat, and the district of Cutch, where civilization had made considerable advances, and where the nature of the country removed all apprehensions of want. This race destroyed all their daughters at the moment of their birth. The British resident, lieutenant-colonel Walker, at length succeeded in abolishing a custom so revolting to humanity. Other instances may be given of that infanticide which is not restricted to females. Krascheninikow says, that there are some of the Kamtschadale women so unnatural as to destroy their children when born, or throw them alive to the dogs. The missionaries affirm that the Bosjesmans, or Bushmen, an African tribe, whose history is little known, "take no great care of their children; that they kill them without remorse on various occasions, as when they are ill shaped, or when they are in want of food." It is generally agreed, that infanticide is universal in China, being either immediately committed by the hands of the parents, or resulting from exposure to the influence of the elements. The exposure of children was a privilege commonly sanctioned among the ancients: it was so prevalent, that Ælian celebrates the humanity of the Thebans, who decreed capital punishment against it: nevertheless, where the parents were in poverty, they might offer the child for a price to the magistrates, who, having brought it up, were entitled to sell it for a slave. Almost all the children exposed in China are females; and the number, though it be difficult to approximate the truth, is certainly very great. Mr. Barrow computes, from the most authentic data which may be deduced from the statement of the missionaries, that it is not less than 9000 in Pekin, the capital, and as many in the provinces. A more powerful motive for infanticide than all the rest, is that unbounded ascendancy which superstition sometimes gains over the human mind. The practice of the moderns, however, is not so explicit in this respect as what we may collect from antiquity. It is said that the Kamtschadales destroy their children if born during storms, though the necessity of doing so may be averted by conjurations. The indigenous inhabitants of Madagascar and Ceylon are likewise accused of infanticide, should the epoch of the birth of a child be declared unfortunate by their priests and astrologers. Certain periods of time, as the months of March and April, the last week of every month, together with every Thursday and Friday, are judged ominous. The child born at these times will either be animated by evil propensities, or occasion numberless disasters, from which exemption is purchased by the sacrifice of its life. Mankind have been prone to imbrue their hands in each other's blood, to propitiate or appease their sanguinary deities; but of all offerings, children were deemed the most acceptable, being a sacrifice of what was the most precious to parents. The Moabites offered up their children for propitiation in desperate enterprises. Thus, "when the king of Moab saw that the battle was too sore for him, he took with him 700 men that drew swords, to break through even unto the king of Edom; but they could not. Then he took his eldest son, that should have reigned in his stead, and offered him for a burnt-offering upon the wall." (2 *Kings* iii, 27.) Again, it is said that Balak, king of Moab, consulting Balaam, the son of Beor of Mesopotamia, and calling on him to come and curse his enemies, exclaimed, "Wherewith shall I come before the Lord, and bow myself before the high God? Shall I come before him with burnt-offerings, with calves of a year old? Will the Lord be pleased with thousands of rams, or with ten thousand rivers of oil? Shall I give my first-born for my transgressions, the fruit of my body for the sin of my soul?" (*Micah* vi, 7.) We read that Hamilcar, on receiving similar intelligence, attended with alarming circumstances, immediately seized on a boy, and offered him for a sacrifice to the deity Kronus; while, for an opposite reason, after Hannibal had gained the battles of Ticinus and Trebia, it was proposed in the senate to sacrifice his infant son. On the occasion of an enemy being at the gates of Carthage, Diodorus relates, that two hundred children of the most distinguished citizens were offered up to the sanguinary deities to avert the danger. We read also, though with more uncertainty of the fact, that the Grecian soothsayers recommended the sacrifice of Iphigenia, the daughter of Agamemnon, to Diana. In descending to a more modern period of history, Hacon, king of Norway, offered his son to Odin to obtain a victory over his enemy Harold; and Harold, the son of Gunild, sacrificed two of his children to his idols, to obtain a tempest for the dispersion of a hostile fleet. The modern Peruvians are said to have sacrificed their first-born to redeem their own lives when in a state of sickness, as Aune, king of Sweden, in older times, sought to purchase a prolongation of his with the blood of nine sons. It was with them as with the Israelites—"Yea, they sacrificed their sons and their daughters unto devils, and shed innocent blood, even the blood of their sons and daughters, whom they sacrificed unto the idols of Canaan." (*Psalm* cvi, 37.) Infanticide may, therefore, be traced to a feeling of shame on the part of the parent, which she has not fortitude to bear; to necessitous circumstances; to the pursuit of pleasure; and to the influence of superstition. We cannot affirm, however, that such are exclusively its sources; but it is not probable that many others will be disclosed.

INFLAMMATION; a disease characterized by heat, pain, redness, attended with more or less of tumefaction and fever. Inflammation is divided into two species, viz. phlegmonous and erysipelatous. Besides this division, inflammation is either acute or chronic, local or general, simple or complicated with other diseases. 1. Phlegmonous inflammation is known by its bright red color, tension, heat, and a circumscribed, throbbing, painful tumefaction of the part, tending to suppuration. *Phlegmon* is generally used to denote an inflammatory tumor, situated in the skin or cellular membrane. When the same disease affects the viscera, it is usually called phlegmonous inflammation. 2. Erysipelatous inflammation is considered as an inflammation of a dull red color, vanishing upon pressure, spreading unequally, with a burning pain, the tumor scarcely perceptible, ending in vesicles, or desquamation. This species of inflammation admits of a division into erythema, when there is merely an affection of the skin, with very little of the whole system; and erysipelas, when there is general affection of the system. Phlegmonous inflammation terminates in resolution, suppuration, gangrene, and scirrhus, or induration. Resolution is known to be about to take place when the symptoms gradually abate; suppuration, when the inflammation does not readily yield to proper remedies, the throbbing increases, the tumor points externally, and rigors come on. Gangrene is about to take place when the pain abates, the pulse sinks, and cold perspirations come on. Scirrhus, or induration, is known by the inflammation continuing a longer time than usual; the tumefaction continues, and a considerable hardness remains. This kind of tumor gives little or no pain, and, when it takes place, it is usually the sequel of inflammation affecting glandular parts. It sometimes, however, is accompanied with lancinating pains, ulcerates, and becomes cancerous. Erythematous inflammation terminates in resolution, suppuration, or gangrene. The symptoms of inflammation are accounted for in the following way:—The redness arises from the dilatation of the small vessels, which become sufficiently large to admit the red particles in large quantities; it appears also to occur, in some cases, from the generation of new vessels. The swelling is caused by the dilatation of the vessels, the plethoric state of the arteries and veins, the exudation of coagulable lymph into the cellular membrane, and the interruption of absorption. In regard to the augmentation of heat, as the thermometer denotes very little increase of temperature, it appears to be accounted for from the increased sensibility of the nerves, which convey false impressions to the sensorium. The pain is occasioned by a deviation from the natural state of the parts, and the unusual condition into which the nerves are thrown. The throbbing depends on the action of the arteries. Blood taken from a person laboring under active inflammation, exhibits a yellowish-white crust on the surface: this is denominated the *buffy*, *coriaceous*, or *inflammatory* coat. This consists of a layer of coagulable lymph, almost destitute of red particles. Blood, in this state, is always termed *sizy*. The occasional and exciting causes of inflammation are very numerous: they, however, may generally be classed under external violence, produced either by mechanical or chemical irritation, changes of temperature, and stimulating foods. Fever often seems to be a remote cause; the inflammation thus produced is generally considered as critical. Spontaneous inflammation sometimes occurs when no perceptible cause can be assigned for its production. Scrofula and syphilis may be considered as exciting causes of inflammation. The proximate cause has been the subject of much dispute. At the present period, it is generally considered to be a morbid dilatation, and increased action of such arteries as lead and are distributed to the inflamed part.

Inflammation of the Eyes. (See *Ophthalmia.*)

Inflammation of the Intestines. (See *Enteritis.*)

INFLECTION OF LIGHT. (See *Optics.*)

INFUSORY ANIMALS. (See *Microscopical Animals.*)

ISERINE. (See *Titanium.*)

ISKIUDAR. (See *Scutari.*)

ISTACHAR. (See *Estachar.*)

IULUS. (See *Ascanius.*)

IVORY BLACK. (See *Carbon.*)

J.

JASPER, sergeant; a revolutionary soldier, whose merits have given him a distinction seldom attained by individuals of his rank in life. At the commencement of the revolutionary war, he enlisted in the second South Carolina regiment of infantry, commanded by colonel Moultrie. He distinguished himself, in a particular manner, at the attack which was made upon fort Moultrie, on Sullivan's island, June 28, 1776. In the warmest part of that contest, the flag-staff was severed by a cannon ball, and the flag fell to the bottom of the ditch, on the outside of the works. This accident was considered, by the anxious inhabitants of Charleston, as putting an end to the contest by striking the American flag to the enemy. The moment Jasper saw that the flag had fallen, he jumped from one of the embrasures, tied the colors to a spunge-staff, and replanted them on the parapet, where he supported them until another flag-staff was procured. The subsequent activity and enterprise of this patriot induced colonel Moultrie to give him a sort of roving commission, to go and come at pleasure. He was privileged to select such men from the regiment as he should choose to accompany him in his enterprises. His parties consisted, generally, of five or six; and he often returned with prisoners before Moultrie was apprized of his absence. Jasper was distinguished for his humane treatment of the enemies who fell into his power. By his sagacity and enterprise, he often succeeded in the capture of those who were lying in ambush for him. He entered the British lines, and remained several days in Savannah in disguise, and, after informing himself of their strength and intentions, returned to the American camp. A remarkable instance of his bravery and humanity is recorded by the biographer of general Marion. A Mr. Jones, an American by birth, was captured by the British, and confined in irons, for deserting the royal cause after he had taken the oath of allegiance. The distress of his wife, at the prospect of the fate which awaited him, made such an impression on Jasper, and a companion of his, sergeant Newton, that they determined to make an effort for his rescue. The departure of Jones, and several others, all in irons, to Savannah for trial, under a guard, consisting of a sergeant, corporal, and eight men, was ordered. Within two miles of Savannah, about thirty yards from the main road, is a spring of fine water, surrounded by a deep and thick underwood, where travellers often halt to refresh themselves. Jasper and his companion considered this spot as the most favorable for their enterprise. They accordingly passed the guard, and concealed themselves near the spring. When the enemy came up, they halted, and only two of the guard remained with the prisoners; while the others leaned their guns against trees in a careless manner, and went to the spring. Jasper and Newton sprung from their place of concealment, seized two of the muskets, and shot the sentinels. The possession of all the arms placed the enemy in their power, and compelled them to surrender. The irons were taken off, and arms put into the hands of those who had been prisoners; and the whole party arrived at Purysburg the next morning, and joined the American camp. Subsequent to the gallant defence at Sullivan's island, colonel Moultrie's regiment was presented with a stand of colors by Mrs. Elliot. During the assault against Savannah, two officers had been killed, and one wounded, endeavoring to plant these colors upon the enemy's parapet. Just before the retreat was ordered, Jasper attempted to replace them upon the works, and, while he was in the act, received a mortal wound, and fell into the ditch. When the retreat was ordered, he succeeded in bringing them off. Commemorative of the gallant deeds of this brave man, his name has been given to one of the counties of Georgia.

Jerusalem Artichoke. (See *Artichoke.*)

Jetsam. (See *Flotsam.*)

Jones, Noble Wimberley, distinguished in the medical and political annals of Georgia, was born near London, about the year 1723 or 1724. His father, who was a physician, accompanied general Oglethorpe to the colony of Georgia, in 1733; and, as no means of instruction could be procured there at that time, he educated his son himself, and, in 1748, associated him in his professional occupations—a connexion which lasted until 1756. At the commencement of the dissensions between Great Britain and the colonies, doctor N. W. Jones took an early and conspicuous stand in favor of the latter, and held a correspondence with doctor Franklin, then the agent of Georgia in England, on the subject of their grievances. He was among the first of those who associated for the purpose of sending delegates to a general congress at Philadelphia, and would have gone himself as one, had it not been for the entreaties of his father, then the treasurer of the province, and a member of the council, who was far advanced in years. He was, however, chosen speaker of the provincial legislature; and at every new election, consequent upon the frequent dissolutions by the governor of the house of commons, he was returned, and elected to that office. When Savannah fell under the power of the British, in December, 1778, doctor Jones removed to Charleston, where he continued to practise until November or December, 1780. He was then arrested by order of the British commander, and carried to St. Augustine, in violation of the articles of capitulation entered into at the surrender of Charleston, in the previous May. On the following July, he was released on a general exchange of prisoners, effected by general Greene, and soon afterwards sailed to Philadelphia. Here, again, he prosecuted his profession, and soon obtained considerable practice. In the course of a few months, he was appointed a delegate to congress, by the legislature of Georgia, and continued in that capacity until December, 1782, when he returned to Savannah, on its evacuation by the British. He had been previously elected a member of the general assembly of the state, and, at their meeting, in January, 1783, was chosen their speaker. During the session, which was one of considerable commotion, he was wounded in the head by a broadsword, whilst advising the leaders of a mob to disperse, who were attacking the house of one of the members. After the adjournment of the legislature, doctor Jones went to Charleston, where he was induced to resume his medical practice, by the solicitations of many of his former patients. In 1788, he again returned to Savannah, where he resided during the rest of his life, actively engaged in the labors of his profession. In 1798, he was chosen president of the convention at Louisville, which amended the constitution of the state. He died on the 9th of January, 1805.

Jousts. (See *Tournament.*)

K.

Kaimes, Lord. (See *Home, Henry.*)

Kantschu. (See *Cossacks.*)

Katy-did. (See *Locust.*)

Keswick, Lake of. (See *Derwent Water.*)

Killdeer. (See *Plover.*)

Kilogramme. (See *Gramme.*)

Kimoli. (See *Argentiera.*)

King-Bird. (See *Fly-Catcher.*)

King's Evil; the name formerly given to the scrofula, in consequence of its being supposed that the kings of England and France possessed the power of curing that disease by the touch. (See *Scrofula*, in the body of the work.) The English and French have each contended that this power was first exercised by their respective monarchs; the French asserting that St. Louis was first endowed with it, and the English that it was possessed by Edward the Confessor. In the reign of Charles II, the practice of touching for the cure of the scrofula seems to have reached its greatest height in England; and such were the crowds that flocked to him, that he is said to have touched more than six thousand persons in one year after his restoration. The demands upon the king's time were so great, that he found it necessary to have the patients examined by his surgeons, for the purpose of determining if those who presented themselves were really sufferers. Those who were decided to be proper objects of compassion, received tickets of admission to the royal presence, and were touched by the king on one of the days of healing, either at Whitehall or Windsor.

Kingston. (See *Hull.*)

Kite. (See *Hawk.*)

Knistenaux. (See *Crees.*)

Kumiss. (See *Horse.*)

L.

La Plata. (See *Chuquisaca.*)

Lace made by Caterpillars; a most extraordinary and ingenious species of manufacture, which has been contrived by an officer of engineers residing in the city of Munich. It consists of lace and veils, with open patterns in them, made entirely by caterpillars. The following is the mode of proceeding adopted:—Having made a paste of the leaves of the plant, on which the species of caterpillar he employs feeds, he spreads it thinly over a stone, or other flat substance, of the required size. He then, with a camel-hair pencil, dipped in olive-oil, draws the pattern he wishes the insects to leave open. This stone is then placed in an inclined position; and a considerable number of the caterpillars are placed at the bottom. A peculiar species is chosen, which spins a strong web; and the animals commence at the bottom, eating and spinning their way up to the top, carefully avoiding every part touched by the oil, but devouring every other part of the paste. The extreme lightness of these veils, combined with some strength, is truly surprising. One of them, measuring twenty-six and a half inches by seventeen inches, weighed only 1.51 grains—a degree of lightness which will appear more strongly by contrast with other fabrics. One square yard of the substance of which these veils are made, weighs four grains and one third; whilst one square yard of silk gauze weighs one hundred and thirty-seven grains, and one square yard of the finest patent net weighs two hundred and sixty-two grains and a half.

Lachsa. (See *Arabia.*)

Lading, Bill of. (See *Bill of Lading.*)

Lagan. (See *Flotsam.*)

Lally-Tollendal, the marquis of, died at Paris, in March, 1830.

Lamarque, general, died at Paris, in May, 1832. Some account of his recent course will be found in the article *France*, in this Appendix.

Lancastrian Schools. (See *Mutual Instruction.*)

Lanfranc is accidentally placed before *Land.*

Langenschwalbach. (See *Schlangenbad.*)

Latin Language. (See *Roman Language and Literature.*)

Laudanum. (See *Opium.*)

Laura; a sort of hermitage. (See *Anachorets.*)

Lawyers. (See *Advocates*, *Attorney*, and *Barrister.*)

Leap Year. (See *Epoch*, and *Year.*)

Lee, Samuel, is a remarkable instance of what may be accomplished by the steady direction of talent to one object. The only education he received was that of a village school, where nothing more than reading, writing and arithmetic was taught. He quitted this school at twelve years of age, to learn the trade of a carpenter and builder; and it was not till years after this, that he conceived the idea of learning foreign languages. He taught himself to read and write in Latin, in Greek, and in Hebrew. He also taught himself the Chaldee, the Syriac, and the Samaritan languages, unaided by any instructer, or by any literary companion, and uninfluenced by the hope either of profit or of praise. Mr. Lee's earnings were, at this time, barely sufficient to the poorest maintenance; yet he spared from this pittance enough to purchase such grammars as could be met with upon the common book-stalls; and, when he had read through a volume, procured in a similar manner, he was forced to pay it away again as part of the price of the next book he wished to purchase. He had to pass from bodily fatigue to mental exertion; for he omitted none of the hours appropriated to manual labor: he retired regularly to rest at ten o'clock at night: he suffered, during this time, from a complaint in his eyes; and, of the inadequate leisure thus left him, part even of that was dedicated to what may be deemed accomplishment; for he acquired, among other things, a knowledge of music. When he exchanged his trade for the superintendence of a charity school, his hours were not much more at his own disposal. It was at this time that doctor Jonathan Scott furnished him with an Arabic grammar; and he had then, for the first time in his life, the pleasure of conversing upon the study in which he was engaged. To this circumstance, and the wonderful proficiency of Mr. Lee (for in a few months he was capable of reading, writing and composing, both in Arabic and Persian), we may attribute Mr. Lee's subsequent engagement with the church missionary society, his admission at Queen's college, Cambridge, and his ordination as a minister of the established church. When he entered at Cambridge, he was unacquainted with the mathematics, but, in one fortnight, qualified himself to attend a class which had gone through several books in Euclid, and soon after discovered an error in a Treatise on Spherical Trigonometry, usually bound up with Simpson's Euclid, the fourteenth proposition of which he disproved. Mr. Lee's chief attention, however, has been turned to theological and philological pursuits; and he has made great progress in translating the Scriptures into various Oriental languages. In 1819, he was appointed Arabic professor to the university of Cambridge.

Leslie, sir John, died in November, 1832, having been knighted a few months previous to his death.

Life-Buoy. The life-buoy, now commonly used in the British navy, is the invention of lieutenant Coots, of the royal navy. It consists of two hollow copper vessels connected together, each about as large as an ordinary sized pillow, and of buoyancy and capacity sufficient to support one man standing upon them. Should there be more than one person requiring support, they can lay hold of rope beckets, fitted to the buoy, and so sustain themselves. Between the two copper vessels, there stands up a hollow pole, or mast, into which is inserted, from below, an iron rod, whose lower extremity is loaded with lead, in such a manner that, when the buoy is let go, the iron slips down to a certain extent, lengthens the lever, and enables the lead at the end to act as ballast. By this means the mast is kept upright, and the buoy prevented from upsetting. The weight at the end of the rod is arranged so as to afford secure footing for two persons, should that number reach it; and there are, also, as was said before, large rope beckets, through which others can thrust their head and shoulders, till assistance is rendered. At the top of the mast is fixed a port-fire, calculated to burn about twenty minutes, or half an hour: this is ignited, most ingeniously, by the same process which lets the buoy fall into the water; so that a man, falling overboard at night, is directed to the buoy by the blaze on the top of its pole or mast, and the boat sent to rescue him also knows in what direction to pull. The method by which this excellent invention is attached to the ship, and dropped into the water in a single instant, is, perhaps, not the least ingenious part of the contrivance. The buoy is generally fixed amid-ships, over the stern, where it is held securely in its place by being strung, or threaded, as it were, on two strong perpendicular rods, fixed to the tafferel, and inserted in holes piercing the frame work of the buoy. The apparatus is kept in its place by what is called a *slip-stopper*, a sort of catch-bolt, or detent, which can be unlocked at pleasure by merely pulling a trigger: upon withdrawing the stopper, the whole machine slips along the rods, and falls at once into the ship's wake. The trigger, which unlocks the slip-stopper, is furnished with a lanyard, passing through a hole in the stern, and having, at its inner end, a large knob, marked "Life-Buoy:" this alone is used in the day-time. Close at hand is another wooden knob, marked "Lock," fastened to the end of a line fixed to the trigger of a gun-lock primed with powder, and so arranged that, when the line is pulled, the port-fire is instantly ignited; while, at the same moment, the life-buoy descends, and floats merrily away, blazing like a light-house. The gunnér, who has charge of the life-buoy lock, sees it freshly and carefully primed every evening at quarters, of which he makes a report to the captain. In the morning, the priming is taken out, and the lock uncocked. During the night, a man is always stationed at this part of the ship; and every half hour, when the bell strikes, he calls out, "Life-Buoy!" to show that he is awake and at his post, exactly in the same manner as the look-out men abaft, on the beam and forward, call out, "Starboard quarter!" "Starboard gangway!" "Starboard bow!" and so on, completely round the ship, to prove that they are not napping. (Captain Basil Hall's *Fragments of Voyages*; second series.)

Linden-Tree. (See *Lime.*)

Lindsey, Theophilus, a celebrated divine of the Unitarian persuasion, was born at Middlewich, in Cheshire, June 20, 1723. His father was an eminent salt proprietor; and Theophilus, the second of his three children, took that name from his godfather Theophilus, earl of Huntingdon. He received his grammar education at Middlewich and Leeds, and, at the age of eighteen, was admitted a scholar at St. John's college, Cambridge. Having taken orders, by the recommendation of the earl of Huntingdon, he was appointed domestic chaplain to the duke of Somerset, and, in 1754, accompanied earl Percy to the continent. On his return, he married the daughter of archdeacon Blackburne, and was presented to a living in Dorsetshire, which he exchanged, in 1764, for the vicarage of Catterick, in Yorkshire. In 1771, he zealously coöperated with archdeacon Blackburne, doctor John Jebb, Mr. Wyvil, and others, to obtain relief in matters of subscription to the thirty-nine articles. Having long entertained a doubt of the doctrine of the Trinity, in 1773, he honorably resigned his livings, and went to London, where, in April, 1774, he performed divine service in a room in Essex street, Strand, which was conducted according to the plan of a liturgy, altered from that of the establishment by the celebrated doctor Samuel Clarke. About the same time, he published his Apology, of which several editions were called for in a few years. This was followed by a larger volume, entitled a Sequel to the Apology, in which he replies to the various answers given to his first work. In 1778, he was enabled, by the assistance of friends, to build a regular chapel in Essex street, the service of which he conducted, in conjunction with doctor Disney, until 1793, when he resigned the pulpit, but continued as active as ever with the pen. In 1802, he published his last work, entitled Considerations on the Divine Government. He died Nov. 3, 1803, in his eightieth year. Besides the works already mentioned, he wrote on the Preface to St. John's Gospel, on Praying to Christ, an Historical View of the State of the Unitarian Doctrine and Worship from the Reformation, and several other pieces. Two volumes of his sermons have also been published since his death.

Linnet. (See *Finch.*)

Litharge. (See *Lead.*)

Loblolly. (See *Pine.*)

Lochaber-Axe. (See *Highlands.*)

Lodomiria. (See *Galicia.*)

Looking-Glass. (See *Mirror.*)

Looming. (See *Mirage.*)

Lori. (See *Lemur.*)

Loups-Garoux. (See *Lycanthropy.*)

Love-Apple. (See *Tomato.*)

M.

Maas. (See *Meuse.*)

Mackintosh, sir James, died in London, May 30, 1832. (See *North American Review* for October, 1832.)

Magic Lantern. (See *Lantern.*)

Mahon, Viscount. (See *Stanhope, Henry Philip.*)

Maki. (See *Lemur.*)

Malines. (See *Mechlin.*)

Mallard. (See *Duck.*)

Mandrill. (See *Baboon.*)

Maro. (See *Virgil.*)

Martin. (See *Swallow.*)

Martyrs, Era of. (See *Epoch.*)

Matthisson died at Wörlitz, near Dresden, in March, 1831.

May-Bug. (See *Cockchafer.*)

Melville, Viscount. (See *Dundas, Henry.*)

Menagerie. The literal meaning of the word *menagerie* points out one of the principal objects of a collection of various living animals. *Ménagerie* is derived from the French word *ménager*, from which we derive our English verb to *manage*. The name *ménagerie* was originally applied to a place for domestic animals, with reference to their nurture and training: it now means any collection of animals. Daubenton and other distinguished naturalists have believed that the ferocity of many of the carnivorous animals may be entirely conquered in the course of time; that they only flee from man through fear, and attack and devour other animals through the pressing calls of hunger; and that the association with human beings, and an abundant supply of food, would render even the lion, the tiger and the wolf, as manageable as our domestic animals. In support of this theory, it may be observed that, although the tiger and the domestic cat have many properties in common, the conquest of the latter species is now complete; and further, that some of the most ferocious animals which have been bred in a state of confinement, or taken exceedingly young, have become perfectly tractable and harmless with those who have rightly understood their natures. The accidents which have sometimes occurred to the attendants of wild beasts, and which are attributed to the treachery of their dispositions, have generally proceeded from an ignorance of their habits. But if it be too much to hope that the ferocious animals may be subdued to our uses, through the education which well-conducted menageries would afford, it cannot be doubted that such establishments offer most interesting opportunities for observing the peculiarities of a great variety of creatures, whose instincts are calculated to excite a rational curiosity, and to fill the mind with that pure and delightful knowledge which is to be acquired in every department of the study of nature. The most common animals offer to the attentive observer objects of the deepest interest. The menagerie of the Tower is now very flourishing. It contains some extremely fine specimens of more than forty quadrupeds, and of various birds and reptiles. The dens in which the animals are kept are tolerably commodious, and great attention is paid to their cleanliness. This collection has lately been made the subject of a very interesting volume. But the Tower menagerie was not always as valuable as at the present time. In 1822, the collection comprised only an elephant, a bear, and two or three birds. It had gradually declined in value for half a century; in some degree, perhaps, from the force of popular prejudice, which was accustomed to consider it only an occupation and amusement for children to make a visit to the "lions in the Tower." In the barbarous ages, and till within the last century, beasts of prey were considered the especial property of kings, as something typical of their power and greatness. In the fortress where the crown of the ancient English monarchs was kept, were also confined their lions. These were generally maintained at the expense of the people, and sometimes of the civic officers of London, by special writ; and the keeper of the lions was a person of rank attached to the court. Gradually, this exertion of the royal prerogative fell into decay; and if a foreign potentate presented a tiger or a leopard to the king, as was often the case with the rulers of the maritime states of Africa, the animal was given to the keeper of the menagerie, to add to his stock of attractions for the public. The beasts of prey which are presented to the king are, in nearly every case, sent to the Tower: but George IV formed a very fine collection of such quadrupeds as are more capable of domestication, and of birds, in Windsor great park, at a lodge called Sand-pit gate. Before the establishment of the gardens of the zoölogical society, this royal collection offered almost the only opportunity of seeing many of the rarer species of animals in their natural condition. In this menagerie they are not pent up in miserable dens, but have large open sheds, with spacious paddocks to range in, water in plenty, and spreading trees to shade them from the noonday sun. The collection is open to the public gratuitously; and here may be seen the giraffe, various species of antelopes and deer, kangaroos in great numbers, zebras, quaggas, ostriches and emeus rearing their young as fearless as the barn-door fowl. The duke of Devonshire has, at his villa at Chiswick, a small collection, which, as in the instance of the Windsor park menagerie, offers the delightful exhibition of several quadrupeds and birds exercising their natural habits almost without restraint. At Chiswick, there was, for many years, a particularly sagacious female elephant, which followed her keeper about the field, in which her spacious hut was placed, knelt down at his bidding, and bore him on her neck in the manner which we read of in books of Oriental history or travel. This interesting animal died in 1828. The establishment of the *ménagerie* at the Jardin des Plantes has afforded opportunities for the study of natural history, which have advanced the branch of the science that relates to quadrupeds in a most remarkable degree. The accurate descriptions of Cuvier, of Geoffroy, of Desmarest, and of other distinguished naturalists of France, are principally to be ascribed to their diligent studies in this school. The value of menageries, not only for popular but for scientific study, depends, however, very much upon the arrangements which determine their construction and regulation. The great object should be, as far as possible, to exhibit the animals in their natural state. It has been a favorite plan with many naturalists to establish a garden, in which the animal should find himself surrounded by his natural food—where the beaver should live amidst a rivulet and a bank of poplars, and the reindeer browse upon his native lichen. Great difficulties, of course, present themselves to the completion of such a project; and though its execution were compatible with any reasonable expense, the difficulty of adjusting the temperature of our climate to the plant and the animal would be very considerable. Yet, in a good menagerie, much ought to be attempted, gradually but systematically, to realize such a desirable object as the exhibition of animals in their natural habits. If the cat tribe are pent up in close dens, what idea can be formed of the crouch and the spring which characterize both their sport and their seizure of prey? With every regard to their security, they might have a sufficient range to exhibit this peculiar property. We can acquire no adequate notion of the kangaroo in a cage; but in a paddock, its remarkable bound at once fixes our attention and curiosity. In a very interesting book (Waterton's Wanderings in South America), there is an account of the sloth, which shows that we can know nothing of some animals, unless we see them in their natural condition. This traveller delights in wonderful stories, which he tells in a style approaching to exaggeration; but there is no reason to doubt the general accuracy of his descriptions of natural objects. The sloth is usually described as slow in his movements, and as in a perpetual state of pain; and from his supposed inaction his name is derived. And why is this? He had not been seen in his native woods by those who described him: he was resting upon the floor of some place of confinement. His feet are not formed for walking on the ground; they cannot act in a perpendicular direction; and his sharp and long claws are curved. He can only move on the ground by pulling himself along by some inequalities on the surface, and, therefore, on a smooth floor he is perfectly wretched. He is intended to pass his life in trees; he does not move or rest *upon* the branches, but *under* them; he is constantly suspended by his four legs, and he thus travels from branch to branch, eating his way, and sleeping when he is satisfied. To put such a creature in a den is to torture him. If the sloth be placed in a menagerie, he should have a tree for his abode; and then we should find that he is neither habitually indolent nor constantly suffering.

Mercurials. (See *Advocate.*)

Merlin. (See *Hawk.*)

Méry. (See *Barthélemy and Méry*, in this Appendix.)

Metallic Tractors. (See *Perkins.*)

Middlesex, Earl of. (See *Sackville, Charles.*)

Milfoil. (See *Yarrow.*)

Milligramme. (See *Gramme.*)

Milling. (See *Fulling.*)

Milt. (See *Spleen.*)

Miracles, in the drama. (See *Mysteries.*)

Mitchill, doctor Samuel Latham, was born in the year 1764, in Queen's county, Long Island, not far from New York. His family were Quakers, and his father was a respectable farmer. For the excellent education, classical as well as otherwise, which he received, he was indebted to his maternal uncle, doctor Samuel Latham, who, perceiving the germs of his talents, adopted him as his son, and gave him every advantage which the best tuition could afford. After the termination of the revolutionary war, young Mitchill, then in his twentieth year, was sent to Edinburgh to attend the courses of its school of medicine. He did not, however, confine himself to the medical lectures, but regularly attended the distinguished professors of natural science and history, and devoted, likewise, a portion of his time to the ancient and modern languages, and even to the elegant arts. Soon after his return, he analysed the springs at Saratoga, which soon after attained great celebrity. In 1792, he was chosen a member of the legislature of his native state, and, shortly afterwards, was appointed professor of chemistry, natural history, and agriculture, in Columbia college. He was the first person in this country to promulgate, in his chemical lectures, the nomenclature of Lavoisier, which he had adopted, although he had been the pupil, at Edinburgh, of the famous doctor Black, who upheld the phlogistic theory. In 1796, he made a memorable mineralogical report to the agricultural society, which is to be found entire in the Medical Repository. To natural history, and especially botany, he was zealously devoted, as appears from the discourse which he delivered at the anniversary of the New York historical society, giving an account of every work and writer that has illustrated the botany of North and South America. In the practice of his profession, doctor Mitchill was highly distinguished. He was a professor of materia medica in the university, the adviser, trustee or attending physician of the New York city hospital, and of a large number of the charitable institutions of that town, and a voluminous writer on matters of medical science. He was the originator of the American Medical Repository, and its presiding editor until the close of the fourteenth volume. Notwithstanding the variety and extent of his professional and scientific labors, he yet found time to mingle in the bustle of politics. It has already been mentioned that, in 1793, he was a member of the state legislature. In 1797, he was again elected, and was afterwards successively chosen to the seventh, eighth, and ninth congresses; to the national senate; again to the legislature; and, in fine, to the eleventh congress. He was employed in many municipal offices, and in commercial or moneyed institutions, in which he acted as commissioner, or director, or manager. In private life, doctor Mitchill was remarkable for affability and simplicity of manners. He bore with singular equanimity the most unreasonable demands on his time, to which his celebrity exposed him in various ways. He was kind, affectionate and cheerful. When engaged in controversy, he never allowed himself to be carried away by undue excitement: at the same time, he knew how to repel attack, as well by argument as by raillery and sarcasm. He died in 1831, in his sixty-eighth year.

MITYLENE. (See *Lesbos.*)
MOORFOWL. (See *Grouse.*)
MOTHER OF PEARL. (See *Nacre.*)
MOUNTAIN LAUREL. (See *Kalmia.*)
MUFFLE. (See *Assaying.*)
MULE JENNY. (See *Cotton Manufacture.*)
MURÆNA. (See *Lamprey.*)
MURDER. (See *Homicide.*)
MUSCOGEES. (See *Creeks.*)
MUSCOVADO. (See *Sugar.*)
MUSQUASH. (See *Muskrat.*)

MUTINY, on board of a merchant vessel, was not formerly punishable by death in England; but now, by statute 11 and 12 William III, c. 7, sec. 9, made perpetual by 6 George I, c. 19, it is enacted, that any seaman or mariner, who shall, in any place where the admiral has jurisdiction, lay violent hands on his commander, whereby to hinder him from fighting in defence of the ship and goods committed to his charge, or shall confine his master, or make or endeavor to make a revolt in the ship, shall suffer pains of death, loss of lands, goods and chattels, as pirates, felons and robbers upon the seas have suffered and ought to suffer. Similar offences, such as the running away with the ship, or any barge, boat, ordnance, ammunition, goods, or merchandises, the yielding of them up voluntarily to pirates, the bringing of seducing messages from pirates, enemies, or rebels, the confederating with, or attempting to corrupt, any commander or mariner to yield up or run away with the ship, &c., the turning pirate, or going over to pirates, are, by the same acts, punishable in the same way. By other statutes, the wilful destruction, casting away, or burning of any ship, with intent to injure the owner, is punishable with death. In case of mutiny, the master is justified in using means sufficient to repress it; and if the death of any of the mutineers ensue, the master is justified, provided the force which he uses be fairly required by the exigency of the occasion; and the master's conduct is not to be scanned too nicely, as it must be borne in mind, that he is generally far removed from all assistance, and that his own safety and that of the ship and cargo chiefly depend upon the due maintenance of his authority. Mutiny in the royal navy is punishable under the provisions of the statute 22 George II, c. 33, which contains the rules or articles of the navy. Among the numerous offences enumerated in that statute, those which partake of the character of mutiny are as follows: the running away with the ship, or any ordnance, ammunition or stores belonging thereto, the making or endeavoring to make any mutinous assembly, the uttering of any words of sedition or mutiny, the concealing of any traitorous or mutinous design, the striking of a superior officer, or drawing or offering to draw or lift up any weapon against him, being in the execution of his office, on any pretence whatsoever, the presuming to quarrel with a superior officer, being in the execution of his office, or the disobeying of any lawful command of a superior officer. All the above offences are punishable with death. With regard to some, and those the least heinous of them, the court-martial has a discretionary power of awarding a less punishment. The behaving with contempt towards a superior officer, being in the execution of his office, the concealing of traitorous or mutinous words spoken by any, to the prejudice of his majesty or government, or the concealing of any words, practice, or design, tending to the hinderance of the service, and not revealing the same to the commanding officer, and the endeavoring to make a disturbance on account of the unwholesomeness of the victuals, or on any other ground, are punishable with such punishment as a court-martial shall think fit to award. Mutiny in the army is punishable under the mutiny act. By this act the king is empowered to make articles of war; i. e. rules or orders for the better government of the army. The mutiny act provides that no offence shall be made punishable with death, except those which are specified therein. These are, mutiny and sedition; not endeavoring to suppress the same; not giving information of the same to the commanding officer; misbehavior before the enemy; shamefully abandoning or giving up a post; compelling the commanding officer so to do; leaving one's post before relieved; being found sleeping on one's post; holding correspondence with any rebel or enemy; entering into terms with the same, without the license of his majesty or of the commanding officer; striking or using violence towards a superior officer, being in the execution of his duty; disobeying any lawful command of a superior officer; and deserting. The laws of the U. States for the punishment of mutiny in the army and navy, and on board merchant ships, are very similar to those of England.

Myriogramme. (See *Gramme.*)

Mysticetus. (See *Whale.*)

N.

Naso. (See *Ovid.*)

Natural Magic. [The following observations on this subject are from the preface to doctor Brewster's treatise on *Natural Magic.*] The subject of natural magic is one of great extent as well as of deep interest. In its widest range, it embraces the history of the governments and the superstitions of ancient times; of the means by which they maintained their influence over the human mind; of the assistance which they derived from the arts and the sciences, and from a knowledge of the powers and phenomena of nature. When the tyrants of antiquity were unable or unwilling to found their sovereignty on the affections and interests of their people, they sought to entrench themselves in the strong-holds of supernatural influence, and to rule with the delegated authority of Heaven. The prince, the priest, and the sage, were leagued in a dark conspiracy to deceive and enslave their species; and man, who refused his submission to a being like himself, became the obedient slave of a spiritual despotism, and willingly bound himself in chains when they seemed to have been forged by the gods. This system of imposture was greatly favored by the ignorance of these early ages. The human mind is at all times fond of the marvellous; and the credulity of the individual may be often measured by his own attachment to the truth. When knowledge was the property of only one caste, it was by no means difficult to employ it in the subjugation of the great mass of society. An acquaintance with the motions of the heavenly bodies, and the variations in the state of the atmosphere, enabled its possessor to predict astronomical and meteorological phenomena, with a frequency and an accuracy which could not fail to invest him with a divine character. The power of bringing down fire from the heavens, even at times when the electric influence was itself in a state of repose, could be regarded only as a gift from Heaven. The power of rendering the human body insensible to fire was an irresistible instrument of imposture; and in the combinations of chemistry, and the influence of drugs and soporific embrocations on the human frame, the ancient magicians found their most available resources. The secret use which was thus made of scientific discoveries and of remarkable inventions, has, no doubt, prevented many of them from reaching the present times; but though we are very ill informed respecting the progress of the ancients in various departments of the physical sciences, yet we have sufficient evidence that almost every branch of knowledge had contributed its wonders to the magician's budget; and we may even obtain some insight into the scientific acquirements of former ages by a diligent study of their fables and their miracles. The science of acoustics furnished the ancient sorcerers with some of their best deceptions. The imitation of thunder in their subterranean temples could not fail to indicate the presence of a supernatural agent. The golden virgins, whose ravishing voices resounded through the temple of Delphos; the stone from the river Pactolus, whose trumpet notes scared the robber from the treasure which it guarded; the speaking head, which uttered its oracular responses at Lesbos; and the vocal statue of Memnon, which began at the break of day to accost the rising sun,—were all deceptions derived from science, and from a diligent observation of the phenomena of nature. The principles of hydrostatics were equally available in the work of deception. The marvellous fountain which Pliny describes in the island of Andros, as discharging wine for seven days, and water during the rest of the year; the spring of oil which broke out in Rome to welcome the return of Augustus from the Sicilian war; the three empty urns which filled themselves with wine at the annual feast of Bacchus in the city of Elis; the glass tomb of Belus, which was full of oil, and which, when once emptied by Xerxes, could not again be filled; the weeping statues, and the perpetual lamps of the ancients,—were all the obvious effects of the equilibrium and pressure of fluids. Although we have no direct evidence that the philosophers of antiquity were skilled in mechanics, yet there are indications of their knowledge, by no means equivocal, in the erection of the Egyptian obelisks, and in the transportation of huge masses of stone, and their subsequent elevation to great heights in their temples. The powers which they employed, and the mechanism by which they operated, have been studiously concealed; but their existence may be inferred from results otherwise inexplicable; and the inference derives additional confirmation from the mechanical arrangements which seem to have formed a part of their religious impostures. When, in some of the infamous mysteries of ancient Rome, the unfortunate victims were carried off by the gods, there is reason to believe that they were hurried away by the power of machinery; and when Apollonius, conducted by the Indian sages to the temple of their god, felt the earth rising and falling beneath his feet like the agitated sea, he was, no doubt, placed upon a moving floor capable of imitating the heavings of the waves. The rapid descent of those who consulted the oracle in the cave of Trophonius; the moving tripods which Apollonius saw in the Indian temples; the walking statues at Antium, and in the temple of Hierapolis; and the wooden pigeon of Archytas,—are specimens of the mechanical resources of the ancient magic. But of all the sciences, optics is the most fertile in marvellous expedients. The power of bringing the remotest objects within the very grasp of the observer, and of swelling into gigantic magnitude the almost invisible bodies of the material world, never fails to inspire with astonishment even those who understand the means by which these prodigies are accomplished. The ancients, indeed, were not acquainted with those combinations of lenses and mirrors which constitute the telescope and the microscope; but they must have been familiar with the property of lenses and mirrors to form erect and inverted images of objects. There is reason to think that they employed them to effect the apparition of their gods; and in some of the descriptions of the optical displays which hallowed their ancient temples, we recognise all the transformations of the modern phantasmagoria. It would be an interesting pursuit to embody the information which history supplies respecting the fables and incantations of the ancient superstitions, and to show how far they can be explained by the scientific knowledge which then prevailed. This task has, to a certain extent, been performed by M. Eusebe Salverte, in a work on the occult sciences, which has recently appeared; but, notwithstanding the ingenuity and learning which it displays, the individual facts are too scanty to support the speculations of the author, and the descriptions are too meagre to satisfy the curiosity of the reader.*

Neff, Felix; a young Protestant clergyman, who devoted his life to the preaching of the divine word to the scattered inhabitants of the dreary regions called the High Alps of France. He received a tolerable education from the pastor of the village, near Geneva, in which he was born. He learned the trade of a nursery gardener; but his passion for romantic adventure made him enter as a private soldier in the service of Geneva, in 1815. At sixteen, he published a valuable little treatise on the culture of trees. Within two years after he became a soldier, he was made a sergeant of artillery, in consequence of his theoretical and practical knowledge of mathematics. He at length quitted the army to devote himself to theological studies. He first assumed the functions of a pastor-catechist, and was ultimately called to the duties which he was so anxious to undertake, by one of those Independent congregations of England whose ministers are received in the Protestant churches of France. He was ordained in London, in 1823, and, within six months after, was appointed pastor of the department of the High Alps. In order to visit his various flocks, the pastor had to travel from his fixed residence, twelve miles in a western direction, sixty in an eastern, twenty in a southern, and thirty-three in a northern; and Neff persevered, in all seasons, in passing on foot from one district to another, climbing mountains covered with snow, forcing a way through the valleys, choked up by the masses of rocks that were hurled down by the winter's storm, and partaking of the coarse fare and imperfect shelter of the peasant's hut. His first attempt at improving his people was to impart an idea of domestic convenience. Chimneys and windows to their hovels were luxuries to which few of them had aspired, till he taught them how easy it was to make a passage for the smoke, and to procure admittance for the light and air. He next convinced them that warmth might be obtained more wholesomely than by pigging together in stables, from which the muck of the cattle was removed but once during the year. He taught them, also, how to cultivate their lands to advantage, and the proper remedies to be used in cases of sickness. He improved their manners, which had been so savage that the women had not been permitted to sit at table with their husbands or brothers, but stood behind them, and received morsels from their hands. He labored hard to diffuse knowledge among them; and, with a view of providing proper teachers for these isolated tracts, he persuaded a number of young persons to assemble, during the most dreary part of the year, when they could not labor in the fields, and to work hard with him in the attainment of knowledge, which they were afterwards to spread among their neighbors. His unremitting labors finally destroyed his health, and he was obliged to quit the inclement district in which he had accomplished so much good. He lingered for some time in a debilitated state, and at length died at Geneva, April 12, 1829.

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* We must caution the young reader against some of the views given in M. Salverte's work. In his anxiety to account for every thing miraculous by natural causes, he has ascribed to the same origin some of those events, in sacred history, which Christians cannot but regard as the result of divine agency.

Nephritis. (See *Kidney*.)

Neptunian Hypothesis. (See *Geology*.)

New Guernsey. (See *Egmont Island*.)

New Sarum. (See *Salisbury*.)

Newt; an obsolete name for a species of small lizard. (See *Lizard*.)

Nieper. (See *Dnieper*.)

Night-Jar. (See *Goat-Sucker*.)

Nonius. (See *Vernier*.)

Notæ Tironianæ. (See *Abbreviations*.)

Nushirwan. (See *Persia*.)

Nutcracker. (See *Nuthatch*.)

O.

Obstetrics. (See *Midwifery*.)

Ogden, Matthias, of New Jersey, a brigadier-general in the army of the U. States, was among the earliest and most decided of those who assumed arms to resist the arbitrary measures of the mother country. He joined the provincial army at Cambridge, and soon afterwards accompanied Arnold in his long and toilsome march to Canada. At the siege of Quebec, he was wounded, and carried from the engagement. On his return, he was invested with the command of a regiment, and retained it until the conclusion of the war, after which he was promoted to the rank of brigadier. He was a man of great liberality and amiableness of character. He died at Elizabethtown, New Jersey, March 31, 1791.

Oil Plant. (See *Sesamum Orientale*.)

Onager. (See *Ballistæ*.)

Orchard Bird. (See *Oriole*.)

Orlando. (See *Roland*.)

Ornithorynchus. (See *Platypus*.)

Orr, Hugh, was born January 13, 1717, at Lochwinioch, in the county of Renfrew, Scotland. He was educated a gunsmith and house-lock filer; and at the age of twenty came to America. One year he resided at Easton, Massachusetts, and the next he removed to Bridgewater. There he built a shop, and set up the first trip-hammer in that part of the country, where he was for several years the only maker of edge tools, of which he manufactured many sorts. In 1748, he made five hundred muskets for the province of Massachusetts Bay, and, during the revolutionary war, commenced anew the manufacturing of arms. In concert with a French gentleman, he set up a foundery for the casting of cannon. These were cast solid and bored: most of them were iron; a few were brass. A great quantity of cannon-shot was also cast at the same furnace, and, together with the cannon, formed a valuable acquisition to the country at that period. Besides spreading the manufacture of edge tools through various parts of Massachusetts, Rhode Island and Connecticut, Mr. Orr originated the business of exporting flax-seed from the part of the country in which he resided, and probably gave the first impulse to the manufacturing of cotton. For several years, he was elected a senator for the county of Plymouth, and enjoyed the intimacy and confidence of governor Bowdoin. He died in December, 1798, in the eighty-second year of his age. In private life, he was exemplary; and his attachment to his adopted country was pure and ardent.

Osborn, John, was born at Sandwich, Massachusetts, in 1713, and graduated at Harvard college in 1737, where he was distinguished for his Latin verses, and his talent for mathematical investigations. After leaving the university, he resided some time at his father's house, at East-ham, in a state of irresolution as to the career he should pursue; but at length, in compliance with the wishes of that parent, he turned his attention to theology, with the design of obtaining a license to preach, and delivered a sermon before an association of the neighboring clergy in Chatham, which commanded their applause by its ingenuity, though its orthodoxy was not altogether perfect. Having subsequently undertaken the study of medicine, he duly qualified himself for practice, and settled as a physician in Middletown, Connecticut. About that period, he married. He died May 31, 1753, at the age of forty. A short time previous to his death, he wrote to his sister that he had "lingered along almost two years a life not worth having," in consequence of an illness, which was the effect of a fever, and which terminated his existence. Of the effusions of his muse, his Whaling Song is best known. An elegiac epistle, written to one sister on the death of another, is also deserving of mention. In disposition, he was mild and cheerful.

Owler. (See *Alder*.)

P.

Pacos; a variety of llama. (See *Llama*.)

Palmistry. (See *Chiromancy*.)

Pampelmoes. (See *Shaddock*.)

Pantograph. (See *Silhouette*.)

Parliamentary Reform. It is not our purpose to go at all into the history of the much-agitated question of parliamentary reform, nor to touch upon the course of argument pursued by its opponents and its advocates. But having already given a view of the English constitution as it was, we shall now give merely the statistics of the acts for amending the representation of England, Scotland and Ireland. We shall only premise, that when the whigs came into power, in 1830, they found themselves not very securely seated; and, as a measure likely to strengthen their influence, the long-talked-of subject of parliamentary reform was revived. On the 1st of March, 1831, the ministerial plan of reform in the representation was accordingly brought forward by lord John Russell; and, after a debate of seven days, leave was given to bring in three bills for reforming the representation of England, Scotland and Ireland. After a debate of two days, the second reading of the bill for England was carried by a majority of 302 to 301, on the 22d. April 18, on the motion of lord John Russell, that the house resolve itself into a committee on the reform bill, general Gascoyne moved, that, in the opinion of the house, the number of representatives for England and Wales (which, by the bill, would be seventy less than before) ought not to be diminished. This motion being carried against ministers, after a debate of two nights, by a majority of 299 to 291, parliament was dissolved on the 22d. The new parliament assembled on the 14th of June; and, on the 24th, lord John Russell obtained leave to bring in a bill for reforming the representation. This bill, which, in many respects, differed from the former, and in which, in particular, the diminution of the number of members was abandoned, finally passed the house, after long and warm debates, on the 21st September, by 349 to 236, but was rejected by the lords by a vote of 199 to 158. On the 20th of October, the parliament was prorogued; and, being again opened on the 6th of December, lord John Russell, for the third time, introduced a reform bill, which passed the commons on the 23d of March: in the lords, however, ministers being left in the minority, on a motion to amend by lord Lyndhurst (May 7), earl Grey advised the creation of such a number of new peers as was necessary to carry through the bill, tendering his resignation as the alternative. The latter was accepted; and lord Wellington made an ineffectual attempt to form a ministry. The whigs were, therefore, reinstated (May 18th), with the assurance of having the necessary means of carrying the measure. The bill then passed the lords by a vote of 166 to 22, a portion of the opposition having withdrawn their resistance, rather than force ministers to make a large creation of new peers; and, on the 7th of June, it received the royal assent. Separate acts were passed for amending the representation of Scotland and that of Ireland. By the act for England, the county members, or knights of the shire, were increased from 94 to 159, as appears from the following table, in which we shall take occasion to give the results of the census of 1831, taken since the greater part of this work was prepared.

Statistical Table of England.

Counties.	Square Miles.	Assessed Ann. Value, 1815.	Population in 1831.	M. P.	County Towns.	Population.
Bedford,	430	343,685	95,383	2	Bedford,	6,959
Berks,	744	643,781	145,289	3	Reading,	15,995
Bucks,	748	643,492	146,529	3	Buckingham,	3,610
Cambridge,	686	645,554	149,955	3	Cambridge,	20,917
Chester,	1,017	1,083,083	334,410	4	Chester,	21,363
Cornwall,	1,407	916,060	302,440	4	Launceston,	2,231
Cumberland,	1,497	705,446	169,861	4	Carlisle,	20,006
Derby,	1,077	887,659	237,170	4	Derby,	23,607
Devon,	2,488	1,897,515	494,168	4	Exeter,	28,201
Dorset,	1,129	698,395	159,252	3	Dorchester,	3,033
Durham,	1,040	791,359	253,827	4	Durham,	10,125
Essex,	1,525	1,556,836	317,233	4	Chelmsford,	5,435
Gloucester,	1,122	1,463,259	386,904	4	Gloucester,	11,933
Hants,	1,533	1,130,952	314,313	4	Southampton,	19,324
Isle of Wight,				1		
Hereford,	971	604,614	110,976	3	Hereford,	11,280
Hertford,	602	571,107	143,341	3	Hertford,	5,247
Huntingdon,	345	320,188	53,149	2	Huntingdon,	3,267
Kent,	1,462	1,644,179	479,155	4	Maidstone,	15,387
Lancaster,	1,806	3,087,774	1,336,854	4	Lancaster,	12,613
Leicester,	816	902,217	197,003	4	Leicester,	39,306
Lincoln,	2,787	2,061,830	317,244	4	Lincoln,	11,892
Middlesex,	279	5,595,537	1,358,541	2	London City,	125,573
Monmouth,	516	295,079	98,130	2	Monmouth,	4,916
Norfolk,	2,013	1,540,952	390,054	4	Norwich,	61,110
Northampton,	965	942,162	179,276	4	Northampton,	15,351
Northumberland,	1,809	1,240,594	222,912	4	Alnwick,	6,988
Nottingham,	774	737,229	225,320	4	Nottingham,	50,680
Oxford,	742	713,147	151,726	3	Oxford,	20,434
Rutland,	200	133,487	19,385	2	Oakham,	2,440
Salop, or Shropshire,	1,403	1,037,988	222,503	4	Shrewsbury,	21,227
Somerset,	1,549	1,900,651	403,908	4	Taunton,	11,139
Stafford,	1,196	1,150,285	410,485	4	Stafford,	6,998
Suffolk,	1,566	1,127,404	296,304	4	Ipswich,	20,454
Surrey,	811	1,579,173	486,326	4	Guildford,	3,813
Sussex,	1,461	915,348	272,328	4	Lewes,	8,592
Warwick,	984	1,236,727	336,988	4	Warwick,	9,109
Westmoreland,	722	298,199	55,041	2	Appleby,	1,459
Wilts,	1,183	1,155,459	239,181	4	Salisbury,	9,876
Worcester,	674	790,975	211,356	4	Worcester	18,610
York, East Riding,	1,268	1,190,316	204,008	2	York,	25,359
York, North Riding,	2,112	1,166,948	190,873	2		
York, West Riding,	2,636	2,396,222	976,415	2		
Total,	50,210	49,742,895	13,089,338	144		
WALES.						
Anglesey,	402	92,581	48,325	1	Beaumaris,	2,497
Brecon,	731	146,539	47,763	1	Brecon,	5,026
Cardigan,	726	141,889	64,780	1	Cardigan,	2,795
Carmarthen,	926	277,455	100,655	2	Carmarthen,	9,995
Carnarvon,	775	125,198	65,753	1	Carnarvon,	7,642
Denbigh,	731	221,783	83,167	2	Denbigh,	3,786
Flint,	309	153,930	60,012	1	Flint,	2,216
Glamorgan,	822	334,192	126,612	2	Cardiff,	6,187
Merioneth,	691	111,436	35,609	1	Dolgelly,	4,087
Montgomery,	982	207,286	66,485	1	Montgomery,	1,118
Pembroke,	575	219,589	81,424	1	Pembroke,	5,511
Radnor,	455	99,717	24,651	1	Presteign,	3,282
Total,	8,125	2,131,596	805,236	15		

Besides the great change thus effected in equalizing the distribution of members in the counties (as each county before returned two knights, except Yorkshire, which returned four), the qualifications of the voters were also modified, so as to extend the elective franchise to every male person in actual occupation of a freehold for life, or of lands, or tenements of copy-hold (see the article *Tenure*, in the body of the work), of the clear yearly value of not less than ten pounds above all rents and charges. The following tables will show the changes which have been made in the representation of cities and boroughs. From an examination of these tables, it will appear that fifty-six rotten boroughs have been wholly disfranchised; thirty boroughs have been deprived of one member; and one borough (Melcombe Regis and Weymouth) of two members; twenty-two boroughs have been created in England, which return two members each; nineteen boroughs returning one member each. Besides taking away the right of election from a stone wall in one place, from a green mound in another, and a ruined house in a third, and vesting it in large, or, at least, in tolerably numerous constituencies in new boroughs, the act has introduced something like uniformity in the qualifications of the voters of the old boroughs and cities, and extended the elective franchise from close corporations, or privileged bodies, to the citizens at large. It gives the right of voting in the elections to every male person of full age, not subject to any legal incapacity, who occupies, in the city or borough, as owner or tenant, any house, ware-house, counting-house, shop, or other building, of the clear yearly value of not less than ten pounds, provided such person shall have paid the poor rates and assessed taxes.

Boroughs disfranchised by the Reform Act.

All these boroughs (Higham Ferrers excepted, which returned but one member) formerly sent two members each to parliament.

Boroughs.	Population.	Number of Voters.
Aldborough, ...	566	60 to 64
Aldeburgh, ...	1,538	about 80
Amersham, ...	2,116	125 to 130
Appleby, ...	1,359	100
Bedwin, Great, . .	2,191	about 80
Beeralston, ...		100
Bishop's Castle, . .	1,729	upwards of 60
Blechingley, ...	1,203	80
Boroughbridge, . .	950	65 to 76
Bossiney, ...	1,006	30 to 36
Brackley, ...	2,107	32
Bramber, ...	97	20 to 36
Callington, ...	1,388	52
Camelford, ...	1,359	25
Castle Rising, . . .	888	40 to 45
Corfe Castle, ...	960	about 50
Downton, ...	3,961	about 60
Dunwich, ...	232	18 to 20
Fowey, ...	1,767	about 300
Gatton, ...	145	5
Grimstead, East, . .	3,364	30
Haslemere, ...	849	60
Hedon, ...	1,080	about 300
Heytesbury, ...	1,413	50
Higham Ferrers, . .	965	145 to 150
Hindon, ...	921	240 to 250
Ilchester, ...	975	70 to 80
Looe, East, ...	865	about 50
Looe, West, ...	593	55 to 60
Lostwithiel, ...	1,074	24
Ludgershall, ...	535	about 70
Milborne Port, . . .	2,072	92 to 100
Minehead, ...	1,494	10
Newport, Cornwall,	1,084	62
Newton, Lancaster,	68	60
Newtown, Hants,	none	38 to 40
Okehampton, ...	2,055	220 to 230
Orford, ...	1,302	about 20
Plympton, ...	804	210
Queenborough, . . .	786	260 to 270
Romney, New, . . .	378	about 150
St. Germain's, . . .	2,586	7
St. Mawes, ...	459	20 to 24
St. Michael's, . . .	97	32
Saltash, ...	3,092	36
Sarum, Old, ...	none	7
Seaford, ...	1,098	98 to 100
Steyning, ...	1,436	about 140
Stockbridge, ...	851	106 to 110
Tregony, ...	1,127	about 260
Wendover, ...	2,008	about 140
Weobly, ...	819	90 to 95
Whitchurch, ...	1,673	70
Winchelsea, ...	772	35 to 40
Wooton Basset, . .	1,896	about 150
Yarmouth, I. W., .	586	45 to 50

Boroughs which formerly returned two Members to Parliament, but are hereafter to send only one.

Boroughs.	Population.	Number of Voters.	Boroughs.	Population.	Number of Voters.
Arundel, ...	2,803	450 to 480	Malmesbury, ...	2,785	13
Ashburton, ...	4,165	170	Midhurst, ...	1,478	18
Calne, ...	4,795	24	Morpeth, ...	5,156	about 200
Christchurch, . . .	1,599	about 50	Northallerton, . . .	5,119	about 200
Clithero, ...	5,213	45 to 50	Petersfield, ...	1,423	about 140
Dartmouth, ...	4,597	about 100	Reigate, ...	3,397	about 200
Droitwich, ...	2,487	12 to 15	Rye, ...	3,715	about 100
Eye, ...	2,313	about 100	St. Ives, ...	4,776	about 200
Grimsby, Great, . .	4,325	280 to 300	Shaftesbury, ...	3,061	about 300
Helston, ...	3,293	35	Thirsk, ...	2,835	50 to 60
Horsham, ...	5,105	25	Wallingford, ...	2,542	about 210
Hythe, ...	2,287	about 140	Wareham, ...	2,325	175 to 180
Launceston, ...	2,231	15	Westbury, ...	2,495	60 to 64
Liskeard, ...	2,853	about 105	Wilton, ...	1,997	21
Lyme Regis, ...	2,621	30 to 35	Woodstock, ...	1,320	about 400

Old Cities and Boroughs which still return Members.

With regard to the number of members returned by the following boroughs, no change has been made by the reform bill, except that the united borough of Weymouth and Melcombe Regis, which formerly returned four members, now returns only two. The city of London sends four members, and all the others two each, except Abingdon, Banbury, Bewdley and Monmouth, which return only one each.

Boroughs.	Population in 1831.	Number of Voters.	Boroughs.	Population in 1831.	Number of Voters.
Abingdon (1), . .	5,259	500 to 600	Dorchester, . . .	3,033	about 200
Andover, ...	4,843	24	Dover, ...	11,924	2600 to 2650
Aylesbury, ...	4,907	600 to 1000	Durham, ...	10,125	about 1200
Banbury (1), . . .	5,906	18	Evesham, ...	3,976	600 to 630
Barnstaple, ...	6,840	550	Exeter, ...	28,201	1580 to 1600
Bath, ...	38,063	28	Gloucester, ...	11,933	about 2200
Bedford, ...	6,959	about 1500	Grantham, ...	10,780	860 to 900
Berwick on T., . .	8,920	about 1500	Guildford, ...	3,813	230 to 240
Beverly, ...	8,302	about 1700	Harwich, ...	4,297	32
Bewdley (1), . . .	3,908	45	Hastings, ...	10,097	nearly 900
Bodmyn, ...	3,782	36	Hereford, ...	10,280	1200 to 1250
Boston, ...	11,240	about 400	Hertford, ...	5,247	about 720
Bridgenorth, . . .	5,065	750 to 800	Honiton, ...	3,509	about 500
Bridgewater, . . .	7,807	300	Hull, ...	32,958	nearly 2700
Bridport, ...	4,242	about 330	Huntingdon, . . .	3,267	245 to 250
Bristol, ...	103,886	6500	Ipswich, ...	20,454	950 to 1050
Buckingham, . . .	3,610	13	Knaresborough, .	5,296	about 110
Bury St. Edm., . .	11,436	37	Lancaster, ...	12,613	about 1600
Cambridge, T., . .	20,917	240 to 250	Leicester, ...	39,306	about 5000
Cambridge, U., . .		about 1200	Leominster, . . .	5,249	about 900
Canterbury, . . .	14,463	1600	Lewes, ...	8,592	about 600
Carlisle, ...	20,006	750 to 770	Lichfield, ...	6,499	about 700
Chester, ...	21,363	1000 to 1200	Lincoln, ...	11,892	about 1500
Chichester, ...	8,270	980 to 1000	Liverpool, ...	189,244	up. of 3000
Chippenham, . . .	4,333	130 to 135	London City (4),	125,573	up. of 12,000
Cirencester, . . .	5,220	about 700	Ludlow, ...	5,253	about 500
Cockermouth, . .	4,536	180 to 190	Lymington, ...	3,361	65 to 70
Colchester, ...	16,167	1500 to 1800	Lynn, King's, . .	13,370	about 300
Coventry, ...	27,070	2800 to 3000	Maidstone, ...	15,387	850 to 900
Cricklade, ...	1,642	about 1350	Maldon, ...	3,830	about 1000
Derby, ...	23,607	750 to 800	Malton, New, . .	4,173	about 400
Devizes, ...	4,562	about 40	Marlborough, . . .	3,426	21

Boroughs.	Population in 1831.	Number of Voters.
Marlow, Great,	4,237	about 250
Monmouth, Newport, Usk (1),	13,715	800 to 830
Newark,	9,557	1500 to 1600
Newcastle, L.,	8,192	660 to 680
Newcastle on T.,	42,760	upw. of 2500
Newport, I. W.,	4,081	24
Northampton,	15,351	upw. of 2000
Norwich,	61,110	upw. of 4000
Nottingham,	50,680	about 4500
Oxford City,	20,434	about 2000
Oxford U.,		upw. of 1200
Penryn,	3,521	550
Peterborough,	5,553	460
Plymouth,	40,651	230 to 240
Pontefract,	4,832	about 1000
Poole,	6,459	about 150
Portsmouth,	8,083	105 to 110
Preston,	33,112	about 6000
Reading,	15,595	900 to 1000
Richmond,	3,900	270
Retford, East,	2,491	1750
Ripon,	5,080	146
Rochester,	9,891	1075 to 1100
Salisbury, or Sarum, New,	9,876	54
St. Alban's,	4,772	700 to 800
Sandwich,	3,136	700
Scarborough,	8,760	44
Shoreham, New,	1,503	1350
Shrewsbury,	21,227	about 1300
Southampton,	19,324	about 800
Southwark,	91,501	nearly 5000
Stafford,	6,998	nearly 1000
Stamford,	5,837	540
Sudbury,	4,677	about 800
Tamworth,	7,182	about 300
Taunton,	11,139	500 to 1000
Tavistock,	5,602	120 to 125
Tewksbury,	5,780	upw. of 500
Thetford,	3,462	31
Tiverton,	9,766	24
Totness,	3,442	58 to 60
Truro,	2,925	26
Warwick,	9,109	about 550
Wells,	6,649	about 450
Wenlock,	2,424	about 200
Westminster,	202,090	about 17,000
Weymouth, Melcombe Regis,	7,655	nearly 600
Wigan,	20,774	210 to 220
Winchester,	9,212	34
Windsor,	7,103	about 620
Worcester,	18,610	about 2000
Wycombe,	6,299	65 to 70
Yarmouth,	21,115	1650 to 1700
York,	25,359	about 3000

The boundaries of the cities and boroughs have been settled anew by an act of parliament, since the last enumeration, in 1831; and the population of many of them has been considerably increased by the change of the boundaries. The boroughs of Aylesbury, Cricklade, New Shoreham and Sandwich now include adjacent districts. East Retford includes the hundred of Bassetlaw, and Penryn the town of Falmouth.

New Boroughs which are to return two Members each.

Boroughs.	Population in 1831.	Boroughs.	Population in 1831.
Birmingham,	146,986	Leeds,	123,393
Blackburn,	27,091	Macclesfield,	23,129
Bolton,	28,299	Oldham,	32,381
Bradford,	23,233	Manchester,	187,019
Brighton,	40,634	Sheffield,	76,378
Finsbury,	244,077	Stockport,	25,469
Lambeth,	203,229	Stoke upon Trent,	37,220
Mary-le-bone,	240,294	Stroud, with Bisley, &c.,	40,647
Tower Hamlets,	359,821	Sunderland, Bishop Wearmouth, &c.,	40,735
Devonport,	44,454		
Greenwich,	24,553	Wolverhampton, with Sedgeley,	67,508
Halifax,	15,382		

New Boroughs which are to return one Member each.

Boroughs.	Population in 1831.	Boroughs.	Population in 1831.
Ashton under Line,	9,222	Rochdale (parish),	74,427
Bury,	15,089	Salford (township),	40,786
Chatham,	16,485	South Shields and Westoe,	18,756
Cheltenham,	22,942	Tynemouth and North Shields,	18,233
Dudley,	23,043	Wakefield,	12,232
Frome,	12,240	Walsall,	15,066
Gateshead,	15,177	Warrington,	16,018
Huddersfield,	19,035	Whitby,	11,720
Kidderminster,	20,865	Whitehaven,	11,393
Kendal,	11,265		

Boroughs in Wales which return one Member each.

To most of these boroughs other places are united, which share in the election of the members. The population of the principal boroughs only is given, with the number of voters in the district. Two of these boroughs, Merthyr Tydvil and Swansea, have been added by the reform act.

Boroughs.	Population.	Number of Voters.	Boroughs.	Population.	Number of Voters.
Beaumaris,	2,497	24	Flint,	2,216	nearly 1200
Brecon,	5,026	700	Haverfordwest,	3,915	500 to 520
Cardiff,	6,187	1500 to 1750	Merthyr Tydvil,	22,083	
Cardigan,	2,795	about 1460	Montgomery,	1,188	about 80
Carmarthen,	9,995	460 to 465	Pembroke,	6,511	about 900
Carnarvon,	7,642	upw. of 800	Radnor,	472	1150 to 1200
Denbigh,	3,786	950 to 1000	Swansea,	13,694	

Summary of Reformed House of Commons.

England,	26 counties, 4 each; 7, 3 each; 6, 2 each; Yorkshire, 6; Isle of Wight, 1,	144	471
	133 cities and boroughs, 2 each,	266	
	53 boroughs, 1 each,	53	
	City of London,	4	
	Universities of Oxford and Cambridge, 2 each,	4	
Wales,	3 counties, 2 each; and 9 counties, 1 each,	15	29
	14 districts of boroughs, 1 each,	14	
Scotland,	33 counties,	28	50
	Edinburgh and Glasgow, 2 each,	4	
	18 boroughs and districts of boroughs, 1 each,	18	
Ireland,	32 counties, 2 each,	64	105
	6 cities, 2 each; 27 boroughs, 1 each,	39	
	The university of Dublin, 2,	2	
	Total,		655

Representation of Scotland. From the time of the legislative union of Scotland with England, in 1706, till 1832, the former has returned forty-five members to the British house of commons, 30 for the thirty-three counties, and fifteen for fifteen districts of boroughs, which comprised sixty-six towns or burghs. But the right of voting for members has heretofore been extremely limited. The number of freeholders, or voters, in 1825, was 3066, as stated in the following statistical table. The number in 1811 was only 2429. In 1796, the number of real voters in the Scottish counties was estimated at 1390. In two counties, there were only three real voters in each, and in seven not more than ten. The nominal and fictitious voters were said to amount to 1202. The number of persons who actually voted at the elections of the boroughs was very inconsiderable, consisting, in general, of the magistrates and town council, amounting to only twenty in each burgh, or, in all the sixty-six burghs, to 1320. By the late reform act, five members are added to the representation of Scotland; and the representation is now distributed as follows: To the thirty-three counties, twenty-eight members; to Edinburgh and Glasgow, two each; to Aberdeen, Dundee, Greenock, Leith and Paisley, one each; and to thirteen districts of boroughs, one each; total, fifty. The right of voting is also placed on the same footing as in England.

Statistical Table of Scotland.

Counties.	Annual Value assessed 1815.	Square Miles.	Population in 1831.	Voters in 1825.
Aberdeen,	£325,218	1,934	177,651	180
Argyle,	227,493	3,030	101,425	74
Ayr,	409,983	1,042	145,055	187
Banff,	88,942	633	48,609	36
Berwick,	245,379	479	34,048	126
Bute,	22,541	154	14,151	13
Caithness,	35,469	744	34,529	24
Clackmannan,	37,978	53	14,729	18
Dumbarton,	71,587	279	33,211	67
Dumfries,	295,621	1,271	73,770	82
Edinburgh,	770,875	387	219,592	170
Elgin or Moray,	73,288	472	34,231	34
Fife,	405,770	521	128,839	246
Forfar,	361,241	978	139,606	127
Haddington,	251,126	291	36,145	105
Inverness,	185,565	3,845	94,797	72
Kincardine,	94,861	401	31,431	75
Kinross,	25,805	84	9,072	23
Kirkcudbright,	213,308	815	40,590	143
Lanark,	686,531	994	316,819	175
Linlithgow,	97,597	124	23,291	65
Nairn,	14,902	197	9,354	19
Orkney and Shetland,	20,938	839	58,239	50
Peebles,	64,182	347	10,578	42
Perth,	55,532	2,864	142,894	221
Renfrew,	265,534	232	133,443	158
Ross and Cromarty,	121,557	2,897	74,820	101
Roxburgh,	254,180	726	43,663	139
Selkirk,	43,584	266	6,733	35
Stirling,	218,761	532	72,621	130
Sutherland,	33,878	1,903	25,518	23
Wigton,	143,425	443	36,258	66
Total,	6,662,651	29,787	2,365,807	3,066

Representation of Ireland. Since the legislative union with England, in 1801, Ireland has heretofore sent one hundred members to the British parliament, sixty-four for the thirty-two counties, two each; for the cities of Dublin and Cork, two each; for thirty-one other cities and boroughs, one each; and one for the university of Dublin. By the late reform act, five members have been added to the representation, one to each of the towns of Belfast, Galway, Limerick and Waterford, and one to the university of Dublin. The following table exhibits the Irish cities and boroughs which return members, together with their population, the former number of voters, and the present number under the reform act. The first six cities send two members each, the rest one each.

Boroughs.	Population in 1821.	Former No. of Voters.	Present No. of Voters.	Boroughs.	Population in 1821.	Former No. of Voters.	Present No. of Voters.
Dublin, . . .	185,881	5,700	14,700	Carlow, ...	8,035	13	350
Cork, ...	100,658	3,876	4,550	Carrickfergus,	8,023	847	440
Limerick, . .	59,045	2,413	2,050	Tralee, ...	7,647	13	254
Belfast, . . .	37,277	13	2,300	Athlone, . . .	7,543	90	229
Waterford, .	28,677	980	1,507	Kinsale, . . .	7,068	175	260
Galway, . . .	27,775	2,094	660	Ennis, ...	6,701	15	250
Kilkenny, . .	23,230	865	850	Cashel, ...	6,548	26	200
Drogheda, . .	18,118	936	837	Dungarvon, .	5,105	871	210
Clonmell, . .	15,590	94	652	Coleraine, . .	4,851	52	188
Bandon, . . .	10,179	13	240	Lisburn, . . .	4,684	141	275
Newry, . . .	10,013	1,086	700	New Ross, . .	4,475	38	246
Londonderry,	9,313	450	578	Downpatrick,	4,123	493	300
Sligo, ...	9,283	13	456	Mallow, ...	4,114	524	200
Dundalk, . .	9,256	32	600	Dungannon, .	3,243	12	161
Youghall, . .	8,969	263	400	Portarlington,	2,817	15	185
Armagh, .	8,493	13	450	Enniskillen,	2,399	14	263
Wexford, . .	8,326	591	430				

—See, further, the *Extraordinary Black Book* (2d ed., 1832), and *Key to both Houses of Parliament* (1 vol., 8vo., 1832).—The old parliament has just been dissolved, and the writs for new elections issued; but the results are yet unknown to us. But we subjoin, in a note, a document which will show our readers what is understood by reform, by at least some of the English reformers.* It is from an address of the national political union in England to the electors of the United Kingdom, on the pledges to be required from candidates for parliament.

Patterson, William, a governor of New Jersey, and one of the associate judges of the supreme court of the U. States, was born in that state, and graduated in its college in 1763. In 1787, he was a member of the convention which framed the constitution of the U. States, and affixed his name to that instrument. In 1789, when the new government commenced its operations, he was a member of the senate from New Jersey, and, in the following year, was chosen governor. He subsequently was appointed to the bench of the supreme court, and continued to sit upon it until his death, at Albany, on the 9th of September, 1806. He was an able statesman, an upright judge, and a disinterested patriot.

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* "The pledges that candidates should be required to give seem to be, 1. *Parliamentary reform.* This includes, first, shortening the duration of parliaments; second, voting by ballot. If the whole nation were divided into electoral districts, and the votes taken by ballot, parliament could not be too short, nor the right of voting too extensive. At present, the duration of parliament should be limited to three years.—2. *Law reform.* This includes a thorough revision of all laws—common, statute, civil, criminal, ecclesiastical, local, parliamentary and municipal; the abolition of all arbitrary jurisdictions; the abridgment, as much as may be possible, of vexation, delay and expense; the detection of crimes, and the certainty of speedy punishment; abolition of barbarous and cruel punishments; and the adoption of such punishments only as are commensurate with offences.—3. *Financial reform.* This includes reduction of taxes to the greatest possible extent; reduction of all over-paid salaries and pensions, as well as payment of every kind, from the highest office in the state to the lowest; the total abolition of all sinecures, all useless offices, and all unearned pensions. It is advisable that indirect taxes, and especially those which press heaviest on trade, manufactures, commerce, and the comforts of the people, should be repealed in preference to direct taxes. Had there been none but direct taxes, the public never would have submitted to be taxed to one half the amount they are at present taxed.—4. *Trade reform.* This includes the abolition of all monopolies, and more especially the "corn law" monopoly; the free admission of all sorts of produce for manufactures, and, indeed, of free trade in every respect, that the greater number may no longer be compelled to purchase any thing at an advanced price, that the profits of a very small comparative number may be unduly increased.—5. *Church reform.* This includes, first, equalization to a great extent of the church establishment. Every dignitary of the church preaches poverty and wallows in wealth. Great wealth being condemned as incompatible with the true religion, none of its ministers should, therefore, be wealthy. Second, ceasing to compel any one to pay for the maintenance of any particular doctrine he does not approve. Third, abolition of tithes in the fairest way and in the shortest time possible.—6. *Abolition of slavery.* This includes the freedom of every person, of every color and every shade of color. Holding of persons in slavery is unjust, atrocious and cruel. Abolition of slavery without compensation to slaveholders is also unjust; but it is inevitable, and, therefore, less unjust than retaining them as slaves. It becomes, then, the duty of the legislature to emancipate all slaves, with the least injustice, as well to the slave-holders as to slaves themselves, and in as little time as possible, compatible with the smallest amount of evil.—7. *Taxes on knowledge.* These are the stamp duty on newspapers, the excise duty on paper, and the duty on advertisements."

Pavois. (See *Shield.*)

Pearl Spar. (See *Dolomite.*)

Penco. (See *Conception, La.*)

Penitentiary System of Pennsylvania. One of the points which have occasioned the greatest division of opinion among the friends of the penitentiary system, relates to solitary confinement. One party contend that this should be made the very basis of prison discipline, and have carried their principles into effect in the Eastern penitentiary of Pennsylvania: others strenuously oppose it. The opinions expressed in the article *Prison Discipline*, in this work, are rather unfavorable to the plan adopted in Pennsylvania. As the question is one of great interest, and as many misconceptions on this subject exist among those who are sincerely devoted to the reformation of prisons, we have thought it not improper to give, in this place, a view of some of the arguments which may be urged in support of the principle of uninterrupted solitary confinement. All that will be attempted will be to touch upon the main features of the question, and to offer some suggestions, derived from the writer's own experience, with the view of making it appear that the system of solitary confinement, as now practised in the Eastern penitentiary in Philadelphia, is the only effectual mode of making prisons schools of reformation, instead of schools of corruption. The more light there is thrown upon this subject, the better for the cause. Strong, and, in our opinion, unfounded prejudices against the system of solitary confinement, are entertained even by men justly esteemed for their enlightened views and strenuous labors for the good of mankind. The late William Roscoe, for instance, was extremely hostile to the system, as appears from several pieces which he has written on the subject of prison discipline.* Mr. Roberts Vaux, of Philadelphia, addressed to him a Letter on the Penitentiary System of Pennsylvania (Philadelphia, 1827), from which, and from another production of this gentleman, we shall present to our readers various extracts in the course of this article. We would also refer the reader, for more particular information than our limits will allow, to other publications of Mr. Vaux, who is indefatigable in promoting the education of children and the correction of criminals. The publications to which we allude are Notices of the Original and Successive Efforts to improve the Prison Discipline in Philadelphia, and to reform the Penal Law of Pennsylvania (Philadelphia, 1826); a Discourse delivered before the Historical Society of the State of Pennsylvania on New-Year's Day, 1827 (Philadelphia, 1827); and a Letter to Bishop White, the President, and other Members of the Philadelphia Society for alleviating the Miseries of Public Prisons, in No. 8, vol. i, of the Journal of Law (Philadelphia, 1830).† —Before going into the subject of this article, we would remark that it is believed by many foreigners, that the Pennsylvania penitentiary system has been abandoned in the very state from which it takes its name. The following passage from the message of the governor of Pennsylvania to the legislature of that state (Dec. 6, 1832), shows that this is a mistake, and throws light upon other points in question:—"Our penitentiary system," says governor Wolf, "as immediately connected with the administration of criminal justice, is to be regarded as being of the first importance, in reference as well to the security of the persons and property, as to the general morals of our citizens; and, so far as regards the Eastern penitentiary, the philanthropic advocates of penitentiary reform may justly congratulate themselves upon the success with which their exertions have been crowned, in bringing so near to perfection a system

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[*] We learn, from doctor T. S. Traill's memoir on that distinguished scholar, read before the literary and philosophical society of Liverpool, in October, 1832, that he said "that no literary distinction had ever afforded him half the gratification he received from the reflection on the part he had taken on this great question; and he expressed his satisfaction that he now might be permitted to think that he had not lived altogether in vain." And yet—to such mistakes are great men liable—we believe that Mr. Roscoe had but a very imperfect knowledge of the effects of solitary confinement, and that his conclusions on the subject were drawn from unfounded suppositions.

[†] These writings are known beyond the limits of the U. States. We find them mentioned with respect in the Lectures on Prisons, &c., by Nicholas Henry Julius (Berlin, 1828), and in the Annals of Institutions for Punishment and Correction of Paupers, their Education, &c., published monthly at Berlin, by the same author (both in German)—works little known in this country, on account of the language in which they are written, but which contain a great mass of information on the subjects mentioned in their titles.

surrounded by so many difficulties. The government of this prison has been conducted, in regard as well to its economy as its discipline, in a manner worthy of all commendation; and the experiment of the efficacy of solitary confinement with labor, so far as there has been opportunity to test it, has exceeded the expectations of the most sanguine among its friends. On the 25th October, 1829, the first convict was received into the Eastern penitentiary; and from thence until the 1st November, 1832, the whole number admitted amounted to 132 males, and 4 females, convicted of various offences. On the day last mentioned, there remained in confinement ninety male and four female prisoners. The whole number discharged between the above dates, by reason of the expiration of sentence, was twenty-eight: nine died, and five were pardoned. One fact, in reference to this institution, bears strong testimony in favor of its discipline. It appears that not a single convict discharged from this prison has ever been returned to it; which would seem to prove pretty clearly, either that a thorough reformation has been produced, or that a dread of a repetition of the unsocial manner of life which had proved so irksome before, has deterred from the commission of crimes within those limits of the state in which a conviction would insure a sentence to the Eastern penitentiary. The annual accounts of the prison are not closed until the 30th of November. I have not, therefore, been able to ascertain, with accuracy, how far the earnings of the prisoners will be available to defray the expenses of the institution. It is believed that, for the present, they will pay all except the salaries of the officers; and it is not doubted that, as soon as the prison shall have been fully organized, the entire expenses will be defrayed out of the proceeds of the establishment. The experiment made in the Eastern penitentiary has demonstrated the fact, that solitary confinement with labor does not impair the health of those subjected to that species of discipline. The prisoners work to more advantage: having no opportunity for conversation or amusement, they eagerly desire employment; here all communication is cut off; no one knows his fellow prisoner; no acquaintance is formed; no contamination takes place; the convict sees no one, holds communion with no one, except such as will give him good advice; he is placed in a situation where he has every inducement to grow better, but little temptation to grow worse; here thought and reflection will crowd upon the mind, and prepare it for solemn impressions, and for moral and religious instruction. The discipline established in this prison; the manner of the construction and arrangement of the building itself, and of the cells in which the prisoners are confined and employed, are admitted, by all who have turned their attention to the subject of penitentiary reform, to possess decided advantages over those of any other establishment designed for similar objects, in this or any other country. Foreigners, whose especial business it has been to visit the penitentiaries in this country, generally, for the purpose of acquiring information in reference to the subject of penitentiary punishment, and its efficacy in producing reformation in those subjected to its discipline, have, with one voice, awarded the meed of merit to that established in the Eastern penitentiary of Pennsylvania. I have the satisfaction to inform you that, of the 400 additional cells recently directed by the legislature to be constructed, 100 are finished, and will be ready as soon as the plastering shall have become sufficiently dry to receive prisoners: 118 more are in a state of forwardness, and the whole number will be completed in the course of the ensuing season."* The report to be made upon the Eastern prison during the present session of the legislature of Pennsylvania, we understand, will contain satisfactory proofs of the advantages of the system, and an account of essential improvements in the architecture of the prison. In the article on *Prison Disci-*

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* The governor continues as follows: "From the last report of the inspectors of the Western penitentiary, as well as from a partial personal inspection of it, I am satisfied that its condition, and the fruits of the course of discipline there exercised, are directly the reverse of that which I have just attempted to describe. From the imperfect plan of the building itself, and the inconvenient, injudicious arrangement of the cells, the discipline of solitary confinement with labor cannot be enforced; the prisoners cannot be restrained from conversing with each other; every prisoner may acquire a knowledge of the individuals confined within its walls; contamination from conversation with his fellow prisoners may take place; the cell of the prisoner cannot, as in the case of the Eastern penitentiary, be used as his workshop, in which he may always be usefully and profitably employed; there are no separate yards connected with the several cells, which renders it necessary, for the health of the prisoners, to allow them frequently to associate with each other in the common yards. Many other defects exist, and many important alterations will be required to fit this establishment for the same course of salutary discipline so successfully practised in the Eastern penitentiary."

pline, in the body of this work, it is said that, "unless some decided advantage is to be gained by a more expensive system (the Pennsylvania plan of separate confinement), it (the Auburn system) ought to be preferred." We believe that the Pennsylvania system affords many advantages which can be but partially attained by the Auburn system, or not at all; and that it is the best suited, of all the prison systems yet devised, to the demands of the age. All persons agree that it is of the first importance to prevent prisoners from contaminating each other. It is a melancholy fact that, wherever a number of persons, who have openly transgressed the laws of society, or whose characters are corrupt, are brought together, and allowed to have free intercourse with each other, each individual has a tendency to sink to the level of the worst. The intercourse of the vicious is mutually corrupting, in the same manner as the intercourse of good men is mutually improving. To prevent this contamination, all agree that, during the night, every prisoner should be separately confined; but many have thought that, during the day time, the criminals engaged in common work may be so strictly watched that no communication can take place among them. In order to effect this—which is the system followed at Auburn—a very severe discipline has necessarily been resorted to. No criminal is allowed to speak to a fellow prisoner: the meals are taken in the separate cells. Beating by the keepers must be allowed, or the discipline cannot be enforced; and it can easily be imagined how severe a discipline is required to suppress that desire of communication which is so deeply planted in human nature, and to counteract the artifices of a host of adepts in cunning, to suppress looks, signs, &c. Mr. Lynds, who built the prison at Sing-Sing, in the state of New York, and who must be considered as the inventor of the system of discipline pursued in the prisons of Auburn and Sing-Sing, says that his greatest difficulty has been to find keepers who were not too lenient.—We would also refer the reader to a letter written by Mr. Edward Livingston (the present secretary of state, and the framer of the code of Louisiana) to Mr. Roberts Vaux, Oct. 25, 1828 (and which appeared at the time in the public prints), concurring in the opinion that communication can be prevented only to a certain degree, and only by the use of very great severity, if the convicts work together in the day time. See also the Introductory Report to the Code of Prison Discipline, explanatory of the Principles on which the Code is founded, being Part of the Penal Law prepared for the State of Louisiana, by Edward Livingston; printed separately by Carey, Lea and Carey (Philadelphia, 1827).—But all this severity is avoided in the system of permanent separate confinement. Communication, and consequent contamination, cannot take place; and yet the system requires neither stripes nor any punishment in order to enforce it. It works calmly and steadily, without subjecting the convict, by continually repeated punishment, to a continual recurrence of disgrace for misdemeanors which the common principles of human nature are sufficient to induce him to commit. But even if we could obtain entirely the desired end—interruption of communication—by the Auburn system, would this system be desirable on other accounts? The article on *Prison Discipline*, speaking of solitary confinement, says, "In the silence and darkness of night the voice of religious instruction is heard; and, if any circumstances can be imagined, calculated to impress the warnings, the encouragements, the threats or the hopes of religion upon the mind, it must surely be those of the convict in his cell, where he is unseen and unheard, and where nothing can reach him but the voice which must come to him, as it were, from another world, telling him of things which, perhaps, never entered into his mind; telling him of God, of eternity, of future reward and future punishment, of suffering far greater than the mere physical endurances of the present life, and of joy infinitely beyond the pleasures he may have experienced." This effect certainly may take place; but it cannot occur often if the convict is in his cell only during the night, when his time will be principally spent in sleep; and, though the nights of winter afford much more time than is required for this purpose, men can accustom themselves to very protracted slumbers, especially if they have never been accustomed to reflection, which must be the case with most convicts. The great object referred to in the above passage can be obtained, in our opinion, only by separate confinement day and night. The greatest step, we believe, which a convict of the common sort can make towards reformation, is from thoughtlessness to thoughtfulness. Few of those committed to prisons are accustomed to think: it is for want of thought that they became guilty. Surrounded as they are, in the

Auburn system, by a variety of objects during the day, they cannot feel the same inducement to reflection as under the pressure of constant solitude. It is difficult, even for a man accustomed from his youth to reflection, and to a mode of life which offers a great variety of objects and subjects, to entertain himself in long-continued solitude. He must occupy his mind with himself. The writer may be permitted to refer to his own experience, having been imprisoned for a considerable period during a time of political persecution; and, though he was not haunted with remorse, and had more resources, from the habits of his past life, than can fall to the lot of most of the inmates of prisons, he can testify to the power with which solitude forces a man to make himself the subject of his contemplation—a power which can hardly be realized by one who has not felt it. How strongly must it operate on the common convict! Deprived of most of the resources of educated men; constantly reminded of the cause which brought him into this situation; undisturbed by any distracting objects; enveloped in silence—he needs must *think*. This power of solitude was acknowledged by the wisest and best of antiquity, who retired from the walks of men to prepare themselves for great tasks by undisturbed contemplation. The labor which the convict performs in his cell, and which is indispensably necessary, does not disturb him, because it soon loses the distracting power of novelty; and, though it will engage him sufficiently to prevent him from sinking into torpid sullenness (as experience shows), it does not interrupt his contemplations. When he has once begun to reflect, he must come to the conclusion that virtue is preferable to vice, and can tranquillize his troubled mind only by resolving on reformation: he must at last seek comfort in the mercy of that Being who created him in his goodness, and who will receive him, notwithstanding his guilt, if he is sincere in his repentance. This will be the natural course of most prisoners in uninterrupted solitary confinement, judging from the observation which we have made on convicts thus confined. All agree that prison discipline ought to be such as to afford a possibility for the reformation of the prisoner; and this seems to us possible only in the Pennsylvania penitentiary system. The cases must be very rare in which a person, in the moment of his conviction, feels the entire justice of it, and resolves to become better: it requires a moral energy of which very few are capable. The feeling usually produced in any man, by any punishment, is that of offended pride, of irritated self-love. The prisoner, at the moment of conviction, does not reflect on the justice of his punishment, but places himself in opposition to the rest of mankind, as an injured man, or, if he be of a better nature, with the embittered feeling of an outcast. In this state of mind he enters the prison. If uninterrupted solitude awaits him, he will, if he is capable of reformation by any means but the devoted labors of personal friends (in which character, of course, the government cannot address him), become thoughtful. When he has reached this state, no new punishment awaits him; no new shame; no corrupting and degrading company; no new cause for considering himself an outcast, and fit associate for the worst. His solitary confinement hangs over him, indeed, as a severe dispensation, but does not daily renew the irritation of his pride. However much he may have been offended by his sentence, the prison in itself inflicts no further degradation. The keeper appears as a friend rather than a severe overseer. If he is disposed to reform, his weakness is not constantly put to the trial by offended shame, by the consideration that he is an outcast and associate of outcasts. We have asked many prisoners, in permanent solitary confinement, whether they would prefer to be placed together with others; and they have almost invariably answered that they considered it as the greatest privilege to be left alone. It ought not to be supposed that solitude bears so hard upon the mind of the prisoner, that he would exchange it for any other situation which would bring him into contact with other human beings. When the writer, after an imprisonment of eight months, was offered the company of another prisoner in his cell, confined also on political grounds, he refused the offer, though it was repeated at several different times. If the prisoner has made any step towards reformation, he always will wish to remain alone. How different from this is the operation of the Auburn system! As soon as the convict leaves his cell, he sees and feels anew that he is degraded: he knows and is known by his fellow convicts; the keeper is (and necessarily must be) a severe, inexorable overseer. He is treated every day anew as an outcast from society; his pride is constantly offended; or, if he has no pride, no opportunity is afforded for the feeling of self-respect to spring up.

We hardly see how the slow process of reformation can go on under these circumstances. Yet the most humane of all systems of prison disciplines—that of Pennsylvania—has been called, and by an excellent man too (Mr. Roscoe), "the most inhuman and unnatural that the cruelty of a tyrant ever invented, no less derogatory to the character of human nature than it is in direct violation of the leading principles of Christianity." We have already shown why we believe that it is not only not "unnatural," but founded on the deepest principles of human nature; that, so far from being "inhuman," it is founded on the very principle of mercy, because it affords the fullest opportunity for reformation, and prevents all exposure to shame and contamination. And is it cruel? All agree, that contamination must be prevented at any price, or reformation entirely given up. The question, then, can only be a comparative one—What is the cruelty of this compared with the Auburn system? Perfect solitude, alleviated only by the permission to work, and to read the Bible, may be a hard situation; but is it more so than being placed in the company of many fellow-prisoners, with whom all intercourse is prevented by the threat of whipping? This must be torture indeed, like that of Tantalus, with the tempting viands constantly before him, and constantly receding from the approach of his famished lips. Solitary confinement, as practised in the Eastern prison of Pennsylvania, is rather a deprivation of most of the comforts of life, than the infliction of positive punishment. It is severe; it ought to be so; it ought to be feared. Is it cruel in a physical respect? Let us answer this question in the words of Mr. Vaux, page 7 of his Letter to Mr. Roscoe, who represents the cells to be "destined to contain an epitome and concentration of all human misery, of which the Bastile of France, and the Inquisition of Spain, were only prototypes and humble models." To which Mr. Vaux replies—"The rooms of the new penitentiary at Philadelphia are fireproof, of comfortable dimensions, with convenient courts to each,* built on the surface of the ground, judiciously lighted from the roof, well ventilated and warmed, and ingeniously provided with means for affording a continual supply of excellent water, to insure the most perfect cleanliness of every prisoner and his apartment. They are, moreover, so arranged as to be inspected, and protected, without a military guard, usually, though unnecessarily, employed in establishments of this kind in most other states. In these chambers no individual, however humble or elevated, can be confined, so long as the public liberty shall endure, but upon conviction of a known and well-defined offence, by the verdict of a jury of the country, and under the sentence of a court, for a specified time. The terms of imprisonment, it is believed, can be apportioned to the nature of every crime with considerable accuracy, and will, no doubt, be measured in that merciful degree which has uniformly characterized the modern penal legislation of Pennsylvania. Where, then,—allow me to inquire,—is there, in this system, the least resemblance to that dreadful receptacle constructed in Paris during the reign of Charles V, and which, at different periods, through four centuries and a half, was an engine of oppression and torture to thousands of *innocent* persons? Or by what detortion can it be compared to the inquisitorial courts and prisons that were instituted in Italy, Portugal and Spain, between the years 1251 and 1537?" Or is it believed that the influence of solitary confinement on the mind is cruel? that the human mind cannot bear it, and must be driven to madness? We believe this by no means to be the case. Mr. Vaux's testimony on this point is important. Cases of insanity, he says, in the pamphlet just quoted, seem not to be more frequent in jails than among the same number of persons in the ordinary condition of life. The cells of the old penitentiary are small and badly contrived, and yet many individuals have, for acts of violence committed in the prison, been confined in them for six, nine, and twelve months in succession, generally in irons, and always on a low diet; but no case of mental alienation has ever occurred there. When the mind becomes hardened by a career of vice, ultimately reaching a point of degradation which fits it for the perpetration of those crimes that are punishable under the penal statutes, no fear of exciting its tender sensibilities need be entertained, by its mere abstraction from equally guilty minds, so as to induce either melancholy or madness. All experience proves how difficult it is to make any impression whatever upon the feelings of the benighted and unhappy subjects of criminal punishment. As to the influence of this system upon the health, we refer the reader to doctor Franklin Bache's letter to Mr. Vaux, contained in No. 8 of the Journal of Law (Philadelphia, October, 1830), which concludes with the words—"We may assert that the entire seclusion of criminals from all association with their fellow criminals, is altogether compatible with their profitable employment at useful trades, and with the preservation of their health." And in his letter to bishop White and others, Mr. Vaux adduces facts to confirm this statement. Not one case of the Asiatic cholera appeared in the Eastern prison of Pennsylvania, whilst the disease swept away numbers in the city of Philadelphia and its environs; and the prison stands close by the city.* The report mentioned above will be, we understand, entirely satisfactory on the point of the health of the prisoners. The expense of the Pennsylvania system has always been considered a great objection to it. It is true that the Eastern prison has cost much; but another prison could be built much more cheaply; and, probably, experience will show the possibility of further reductions, though this system may always be more expensive than the other. Yet the advantages are so great; the final saving of the government, by preventing all the prisoners from leaving the prison worse than they were at the time of entering it, and by dismissing many who will return to duty and usefulness, is so decided; and the necessity of the system, if any of the desirable objects are to be obtained, so imperious,—that we believe the greater expense ought not to be considered an objection wherever means exist to meet it. We shall quote Mr. Vaux also respecting this point. It is certain that the prisoners do not leave the Pennsylvania penitentiary worse than they entered it, are not irritated and embittered against mankind, and, if they have truly resolved to become better, are not exposed to be driven by associates in the prison to the commission of new crimes, which has hitherto been so common an occurrence, as every one knows who has paid attention to the history of convicts. Men confined in common prisons, or even in those conducted on the Auburn system, find it extremely difficult, after their release, to disentangle themselves from the net of vice, though they may earnestly wish to do so. But the Pennsylvania system does not even allow the convict to know the names of his fellow prisoners. The wish to return to a life of honest industry is not so rare in released convicts as most persons suppose, provided the prisoner has not been kept in a state of constant contamination. A vicious life is not comfortable; generally the causes which make a wicked person prefer the path of crime to an honorable life, are twofold—idleness, reluctance to regular labor, and the love of excitement. If you can overcome these two dispositions; if you can instil into the convict a love of labor, and make it a habit with him; and if you can cure him of the craving for excitement,—you will, in most cases, have laid the firmest foundation for a thorough reformation. Now, labor appears to the prisoner in solitary confinement as the sweetest comfort. He asks, he begs for it; and no punishment could be harder than denying him the comfort of labor in his lonely cell. They all will tell you so. And as regards the second point, what more effectual means can be found of curing a man of a vitiated love of excitement (such as is found in robbers, pirates, burglars, &c.) than uninterrupted confinement in solitude for years? It is a severe infliction, indeed; but it is effectual, and not more severe than is necessary. Another objection to perpetual solitude is, that the convicts cannot worship together; but in the Eastern prison of Pennsylvania, they have preaching addressed to them. A curtain is drawn along the corridor, the sound-hole of each cell is opened (see the description of the building in the article *Prison Discipline*), and the preacher stands at one end of the corridor, from which he may be heard by all the prisoners in that corridor, though no convict can see into the opposite cell, being prevented by the curtain.—In our opinion, the Pennsylvania penitentiary system is the creation of a spirit of enlightened humanity, which reflects the greatest honor on the disciples of Penn, and has solved one of the most difficult problems presented to the lover of mankind. If widely adopted, as it probably will be, it bids fair to accomplish all that can be attained in the way of prison discipline. We would direct our reader's attention to an interesting letter on the subject of solitary confinement, written by a convict, and appended to Mr. Vaux's letter, quoted above, and will conclude our remarks with a summary taken from Mr. Vaux's letter to Mr. Roscoe:—"By separate confinement, it is intended to punish those who will not control their wicked passions and propensities, and, moreover, to effect this punishment without terminating the life of the culprit in the midst of his wickedness, or making a mockery of justice by forming such into communities of hardened and corrupting transgressors, who enjoy each other's society, and contemn the very power which thus vainly seeks their restoration, and idly calculates to afford security to the state, from their outrages in future. In separate confinement, every prisoner is placed beyond the possibility of being made more corrupt by his imprisonment. In separate confinement, the prisoners will not know who are undergoing punishment at the same time with themselves, and thus will be afforded one of the greatest protections to such as may happily be enabled to form resolutions to behave well when they are discharged. In separate confinement, it is especially intended to furnish the criminal with every opportunity which Christian duty enjoins, for promoting his restoration to the path of virtue; because seclusion is believed to be an essential ingredient in moral treatment, and, with religious instruction and advice superadded, is calculated to achieve more than has ever yet been done for the miserable tenants of our penitentiaries. In separate confinement, a specific graduation of punishment can be obtained, as surely, and with as much facility, as by any other system. Some prisoners may labor—some may be kept without labor—some may have the privilege of books—others may be deprived of it—some may experience total seclusion—others may enjoy such intercourse as shall comport with an entire separation of prisoners. In separate confinement, the same variety of discipline, for offences committed after convicts are introduced into prison, which any other mode affords, can be obtained (though irregularities must necessarily be less frequent), by denying the refractory individual the benefit of his yard, by taking from him his books or labor, and lastly, in extreme cases, by diminishing his diet to the lowest rate. By the last means, the most fierce, hardened and desperate offender can be subdued. From separate confinement other advantages of an economical nature will result: among these may be mentioned a great reduction of the terms of imprisonment; for, instead of from three to twenty *years*, and sometimes longer, as many *months*, excepting for very atrocious crimes, will answer all the ends of retributive justice, and penitential experience, which, on the actual plan, the greatest detention in prison altogether fails to accomplish. Besides this abatement of expense in maintaining prisoners, very few keepers will be required on the new system; and the females should be intrusted wholly to the custody of suitable individuals of their own sex, whose services can, of course, be secured for less compensation than those of men. Such of the prisoners as may be employed, will necessarily labor alone; and, the kinds of business in which they will be engaged not being as rough and exposing as those now adopted, the expenditure for clothing must be much diminished. On the score of cost, therefore,—if that indeed be an object in a work of this magnitude,—the solitary plan recommends itself to the regard of the public economist. But the problem of expense, in my opinion, can only be truly solved by showing the cheapest method of keeping prisoners to be, that which is most likely to reform them, to deter others, by the imposing character of the punishment, from preying upon the honest and unoffending members of society, afterwards involving heavy judicial costs to establish their guilt, and becoming, at last, a charge to the country as convicted felons."

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* The exact size of the chambers is 8 feet by 12 feet, the highest point of the ceiling 16 feet. The yards are 8 feet by 20 feet.

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* See note, p. 527, post, respecting the report of Messrs. Beaumont and Toqueville to the French gov.

Périer, Casimir. died at Paris, May 16, 1832.

Pets. (See *Funfkirchen.*)

Phanariots. (See *Fanariots.*)

Phansygurs, or Thugs; a remarkable race of professional murderers in some parts of Hindoostan. Having been compelled, in a great measure, to abandon their sanguinary trade in the original territories of the British government, they have, of late years, pursued their operations principally in the newly-acquired provinces of North-western and Central India, where, from the scantier population, and comparatively backward state of the country, they run less hazard of interruption. A thug is a Hindoo of a low caste, or a Mussulman, who, at the conclusion of his agricultural labors, about the commencement of the hot season, in March and April, quits his village, and goes forth to make a little money by strangling—an art in which he sometimes becomes a great proficient, always, if dexterous, performing it with a pocket-handkerchief, in preference to a noose, to avoid suspicion. The hot season is chosen for this excursion, because then people travel by night, and thus afford better opportunities for attack. When the rainy season begins, in July or August, the thug returns, with his share of the booty which the gang have accumulated, to his usual residence, and takes to ploughing the field, like a peaceable husbandman. In this alternation of agricultural and homicidal pursuits, the thug lives on, often undetected, till age obliges him to remain at home, and send out his son in his stead. "I am a thug of the royal records (meaning one of sufficient notoriety to have been recorded as such), and my forefathers before me, for seven generations, have followed this profession," was the boast of one of these wretches, who attach some pride to the number of generations through which they can trace the adherence of their family to this pursuit. In the wild and unsettled parts of the country, their associations assume a more distinct and separate character; and in such places the leaders are to be found, around whom, at the beginning of the season, the mere operative thugs assemble. The abodes of the latter, however, are often mingled with those of the inhabitants of the most civilized stations and villages, where their conduct is usually quiet and inoffensive. On assembling at the beginning of the season, the line of road which they are to pursue is settled, and then they separate into small parties, under all sorts of disguises, sometimes travelling as sepoys returning home on a furlough; sometimes appearing, one as a merchant and another as his attendant; sometimes personifying pilgrims. In these characters they insinuate themselves into acquaintance with travellers, and, if they find them to be rich, take an opportunity of despatching them, either by means of some stupefying drug, which they use in the tobacco of their hookahs, and the dagger, or else by throttling them with a pocket-handkerchief, when they have persuaded them to halt, at some convenient spot, under pretence of being fatigued, or wishing to take rest. The bodies of the victims are then buried, or thrown into a well or neighboring cavern. In this manner, a single gang, consisting of twenty-five thugs, has been proved, on trial, to have, in an excursion of six weeks, despatched thirty victims.

Phigalian Marbles; a series of sculptures, in *alto relievo*, in the British museum, so called because they were discovered in the year 1812, near Paulizza, supposed to be the ancient town of Phigalia, in Arcadia. They are from the temple of Apollo Epicurius; and the subjects represented are the battle of the Centaurs and the Lapithæ, and the contest between the Greeks and Amazons. There is great ability displayed in the execution of these marbles, although some heaviness and disproportion are observable in the figures. The conception of the whole, and the composition of the various groups, are, however, remarkably fine, and compensate, in a great measure, for the defects above mentioned. The circumstance which renders these marbles particularly interesting is the knowledge of the time at which they were executed; for Pausanias (*Arcad.*, c. 14) says that the temple of Apollo Epicurius was built by Ictinus, the architect who superintended the construction of the Parthenon at Athens; and, though the Phigalian marbles want the purity of design and execution which distinguish the Athenian works, the high qualities they do possess give them an elevated place among the remains of ancient art.

Phrygian Cap. (See *Mitre.*)

Pie. (See *Magpie.*)

Pine-Snake. (See *Serpent.*)

Pithecus. (See *Ape.*)

Pithyusæ. (See *Baleares.*)

Plea, Pleadings. (See *Issue.*)

Plinlimmon. (See *Snowdon.*)

Pluviometer. (See *Rain-Gauge.*

Polecat. (See *Skunk.*)

Poliziano. (See *Politianus.*)

Pont du Gard. (See *Gard.*)

Prairie Dog. (See *Marmot.*)

Presumptive Heirs. (See *Apparent.*)

Primer Seisin. (See *Tenures.*)

Ptarmigan; a species of grouse. (See *Grouse.*)

Ptisan. (See *Tisan.*)

Pycnite. (See *Topaz.*)

Pyreneite. (See *Garnet.*)

Pyrope. (See *Garnet.*)

Pyrotartaric Acid. (See *Tartaric Acid.*)

Python. This enormous genus of serpents, which is very often confounded with the boas of the new continent, is found only in some of the hot regions of the eastern continent. The pythons have the ventral plates narrow, like the boas, but differ from the latter in having double plates under the tail. Their head has plates on the end of the muzzle; and there are fossets to their lips. Some species of this genus approach, and even equal, the boas in size; and the ancients appear to have had some acquaintance with several of them. Aristotle speaks of African serpents as long as vessels, by which a galley with three oars might be overturned. Pliny talks of Indian serpents capable of swallowing deer.

Ælian mentions dragons of eighty to one hundred cubits in length; and, finally, Suetonius mentions that there was exhibited at Rome, under Augustus Cæsar, a serpent of fifty cubits in length. With its enormous length twisted round a tree, the python awaits in ambuscade the arrival of its fated victim, which it immediately envelopes in its tortuous folds, and strangles in its murderous embrace. It then breaks its bones by squeezing it, extends it on the earth, covers it with a mucous saliva, and begins to swallow it head first. In this sort of deglutition, the two jaws of the serpent dilate excessively, so that it seems to swallow a body larger than itself. In the mean time, digestion begins to take place in the œsophagus. The serpent then becomes lethargic, and is very easily killed, as he neither offers resistance nor attempts to fly. Among the species of this genus, the one most worthy of remark is the *ular sawa* (*P. amethystinus*, Daud.), Java snake (*col. Javanicus* of Shaw). This serpent, which is as large as any boa, reaching to more than thirty feet in length, inhabits the island of Java. The meaning of its Japanese name is *serpent of the rice-fields*, because it lives in them habitually. Its bite is not venomous. It usually lives on rats and birds, but sometimes devours larger animals, which it finds in the mountains. Of the *P. bora*, Russel was the first who gave us any account. It is a native of Bengal, and not venomous, notwithstanding the assertion of the natives, who affirm that persons bitten by it have a cutaneous eruption over the entire body in the course of ten or twelve days.

Q.

Quartation. (See *Gold.*)
Quaxamarca. (See *Caxamarca.*)
Quinsy Berries. (See *Currants.*)

R.

Radius Vector. (See *Vector.*)
Ramadan. (See *Ramazan.*)
Raskolnicians. (See *Roskolnicians.*)
Rebate. (See *Discount.*)
Reform, Parliamentary. (See *Parliamentary Reform*, in this Appendix.)
Reichstadt, duke of, died in 1832.
Reims. (See *Rheims.*)
Rejoinder. (See *Issue.*)

Remora. (See *Echeneis.*)
Rémusat died in May, 1832.
Rent. (See *Political Economy.*)
Resins. (See *Vegetable Chemistry.*)
Resuscitation. (See *Drowning.*)
Rhomb Spar. (See *Dolomite.*)
Ricci. (See *Rizzio.*)
Right Side, and Left Side, in the French chamber of deputies. (See *Coté Droit*, and *Coté Gauche.*)
Ritual. (See *Liturgy.*)
Roasting Jack. (See *Jack.*)
Roving Cotton. (See *Cotton Manufacture.*)
Ruota Romana. (See *Rota.*)
Rustschuk. (See *Ruscsuck.*)
Ryder, Dudley. (See *Harrowby.*)

S.

Sabrina. (See *Severn.*)
Saccholactic Acid. (See *Mucic Acid.*)
Sachtleeven. (See *Zaftleeven.*)
Saint Clair, Strait of. (See *Detroit River.*)
Saint Lucia Bark. (See *Caribbee Bark.*)
Saint Ubes. (See *Setuval.*)
Salop. (See *Starch.*)
Samscrit. (See *Sanscrit.*)
Sanction. (See *Assent.*)
Sardine. (See *Sprat.*)
Sardoin. (See *Sard.*)

Sardonic Laugh; a convulsive affection of the muscles of the face and lips on both sides, which involuntarily forces the muscles of those parts into a species of grinning distortion, and forms a species of malignant sneer. It sometimes arises from eating hemlock, or other poisons, or succeeds to an apoplectic stroke.

Sati. (See *Suttee.*)

Saws. [The following article is from the treatise on manufactures in metal in Lardner's *Cabinet Cyclopedia.*] The saw is, undoubtedly, next to the axe, the instrument most effectual in the hands of man when the trees of the forest are to be appropriated to his convenience. The earliest and most obvious method of preparing timber for use would be to split the trunks with wedges, and afterwards to smooth and fashion the planks by means of the hatchet. This wasteful and slovenly process had allowedly one recommendation of no small importance in ages when the strength and management of timber were less perfectly understood than they are at present. In riving, the separation of the boards or spars necessarily followed the direction of the grain; and hence the strength of the material was secured at its maximum ratio, the disruption of fibre being much less easily effected in split than in sawn timber. It is equally certain that wood cut in this primitive manner must often be crooked and irregular. This, however, in many respects, may be no disadvantage, but, for some purposes, a desideratum, as in ship-building; besides, the straightening of it would not always be impracticable. It is to the invention of the saw, however, that we owe the ease, economy and regularity, with which the largest trees are separated into useful portions by modern industry. That the saws of the Grecian carpenters were pretty similar in form to those at present in use, is satisfactorily inferred from a painting found at Herculaneum, in which two genii are represented at the end of a bench, consisting of a long table, each end of which rests upon two four-footed stools. The instrument in this representation resembles our frame saw: it consists of a square frame, having in the middle a blade or web, the teeth of which stand perpendicular to the plane of the frame. The arms, too, in which the blade is fastened, have the same form as that which is at present given to them. The piece of wood which is to be sawn extends beyond the end of the bench; and one of the workmen appears standing and the other sitting on the ground. This is probably the most ancient authentic voucher extant, for the early existence of an instrument resembling our common saw. Montfaucon has given figures of two ancient saws, though too imperfectly delineated to allow their peculiar formation to be distinguished. Palladius describes saws fastened to a handle; and Cicero, in his oration for Cluentius, incidentally mentions one with which an ingenious thief sawed out the bottom of a chest. Since the fourth century, if not earlier, the working of large saws, with a reciprocating motion, by means of water power, has been more or less common in various parts of Europe, especially in Germany, Norway, and, at a later period, in England. A succinct account of these early saw-mills will not be out of place here. According to Beckmann, there were saw-mills at Augsburg as early as 1322. When settlers were first sent out to the island of Madeira, which was discovered in 1420, not only were the various kinds of European fruits carried thither, but saw-mills were erected for the purpose of cutting into deals the many species of excellent timber with which the island abounded, and which were afterwards transported to Portugal. About the year 1427, the city of Breslau had a saw-mill which produced the yearly rent of three merks; and, in 1490, the magistrates of Erfurt purchased a forest, in which they caused a saw-mill to be erected; and they rented another mill in the neighborhood besides. In Norway, which is covered with forests, the first saw-mill was erected about the year 1530. This mode of manufacturing timber was called the "new art;" and, because the exportation of deals was by means thereof much increased, this circumstance gave occasion to the deal tithe imposed by Christian III, in the year 1545. In 1555, the bishop of Ely, ambassador from Mary, queen of England, to the court of Rome, having seen a saw-mill in the neighborhood of Lyons, the writer of his travels thought it worthy of a particular description, from which it appears that the motion of the blade was perpendicular; for, says the account, the wheel "being turned with the force of the water, hoisted *up and down* the saw." Peter the Great introduced the saw into Russia. For this purpose policy was necessary. The czar, during his residence in England, and while employed as a carpenter in one of the dock-yards, had, in all probability, both seen the advantages of the saw, and used it with his own hands. On his return to St. Petersburg, the capital of his dominions, among other things that attracted his attention as requiring reform, was the practice of riving timber. Peter saw the necessity of introducing a more rational mode. Instead, however, of interdicting the old method, he imposed a duty upon all the split timber that was floated down the Neva, while sawn deals were exempted from the impost. By this course, the rude practice of riving was soon superseded by the more effective operation of the saw wrought by machinery. In the sixteenth century, mills became general, in which, by working several saws parallel to each other, a plank was at once cut into several deals. The Dutch have claimed the invention of this improvement; and a great number of saw-mills of this kind might formerly be seen at Saardam, in Holland. The first mill, however, of this description, is believed to have been erected in Sweden, in the year 1653; and one of the wonders of that kingdom was a mill having the water-wheel twelve feet broad, and giving motion to seventy-two saws. The common hand-saw, similar to that so universally in use among carpenters, has, no doubt, been known from a remote antiquity; in all probability, indeed, it presents the earliest form of the instrument. In that curious specimen of typography, the Nuremberg Chronicle, which made its appearance soon after the invention of printing, there occurs, amidst hundreds of other wood cuts, a rude picture of the building of the ark, in which two or three saws are introduced, differing but little from those at present in use with our joiners. The axes, on the other hand, delineated in the print, differ materially from those with which every one must be more or less acquainted. That the artist might intend them for antediluvian axes may well enough be imagined by the reader, when told that, in a preceding picture of the expulsion of Adam and Eve from paradise, the gates of the garden of Eden are furnished with immense scroll hinges, like those sometimes seen on old church doors. Saws are manufactured either of iron, which is hammer-hardened, or planished on an anvil, to give the requisite degree of stiffness and elasticity; or they are made of shear steel; or, lastly, of cast steel. The last named, of course, are the best, the most expensive, as well as the most durable, articles—the only instruments, indeed, in which all the desirable qualities of a good tool of this kind are found to be combined.

Say, Jean Baptiste, professor of political economy in the university of Paris, died in November, 1832.

Scarlet Snake. (See *Serpent.*)

Schinderhannes. (See *Bückler, John.*)

Schuyler, Peter, mayor of the city of Albany, was much distinguished for his patriotism, and for his influence over the Indians. In 1691, with a party of 300 Mohawks and about the same number of English, he made a bold attack upon the French settlements at the north end of lake Champlain, and slew three hundred of the enemy. Such was his authority with the Five Nations, that whatever he recommended had the force of law In 1710, he went to England at his own expense, taking with him five Indian chiefs, for the purpose of exciting the government to vigorous measures against the French in Canada. The chief command in New York devolved upon him as the eldest member of the council, in 1719; but in the following year governor Burnet arrived. He often warned the New England colonies of expeditions meditated against them by the French and Indians.

Sciatica. (See *Rheumatism.*)

Scolping, or **Sculping.** (See *Lasher.*)

Scott, sir Walter, died at Abbotsford, Sept. 21, 1832, and was interred in Dryburgh abbey.

Scourging. (See *Flagellation.*)

Screech Owl. (See *Owl.*)

Screven, James, a brigadier-general in Georgia during the revolutionary war, commanded the militia when that state was invaded from East Florida, in November, 1778. While a party of the enemy was marching from Sunbury towards Savannah, he had repeated skirmishes with them at the head of a hundred militia. In an engagement at Midway, the place of his residence, he was wounded by a musket ball, and fell from his horse. Several of the British immediately came up, and discharged their pieces at him. He died, soon afterwards, of his wounds. Few officers were more zealous in the service of their country, and few men were more esteemed and beloved for their virtues in private life.

Sea Eggs. (See *Echinus.*)

Sea Kings. (See *Vikingr.*)

Sea Weed. (See *Fuci.*)

Semsem. (See *Sesamum Orientale.*)

Serjeants at Law. (See *Barristers*, and *Inns of Court.*)

Sesac. (See *Shishac.*)

Setines; the modern name of Athens. (See *Athens.*)

Sewall, Stephen, first Hancock professor of Hebrew in Harvard college, was born at York, Maine, in April, 1734, and graduated at the institution just named, in 1761. In 1762, he was appointed Hebrew instructer in the college, and June 17, 1765, Hebrew professor. He continued in the office for more than twenty years. He died in July, 1804. He published a Hebrew Grammar (8vo., 1763); the Scripture Account of the Schechinah (1794); the Scripture History, relating to the Overthrow of Sodom and Gomorrha, and to the Origin of the Salt Sea, or Lake of Sodom (1796); translation of the first book of Young's Night Thoughts into Latin; *Carmina Sacra, quæ Latine Græceque condidit America* (1789). He also wrote a Chaldee and English Dictionary, which is in manuscript in the library of Harvard college.

Seybert, doctor Adam, was born in Philadelphia, in May, 1773, and received his academical and medical education in the university of Pennsylvania. In 1793, he went to Europe, and pursued his professional studies in Paris, London, Edinburgh and Göttingen. He became an intimate friend of professor Blumenbach The sciences of chemistry and mineralo gy were favorite pursuits with him. His collection which he brought from Europe was, perhaps, the first well-assorted cabinet imported into the U. States. He contributed papers to Cox's Medical Museum, relating to the chemical composition of the atmosphere, the extraction of the metal from the sulphuret of zinc, &c., and discovered the best mode of refining camphor. In 1818, he published, under the patronage of congress, his large work, entitled Statistical Annals, embracing Views of the Population, Commerce, Navigation, &c., of the United States of America, founded on Official Documents, commencing March 4, 1789, and ending April 20, 1818. In May, 1819, he went to Europe, travelled in France, Italy, Switzerland, Germany, Holland and Ireland, and returned to the U. States, August, 1821. In October, 1824, he made a third voyage to Europe, by which a chronic disorder, supposed by the physicians in Paris to be an inflammatory affection of the pylorus, was much aggravated. He died at Paris, May 2, 1825. It having been his opinion that some of the unfortunate convicts, who are discharged from the Philadelphia penitentiary, after having undergone the penalty of the law, without having the means to procure a morsel of food or a night's lodging, might be prevented from the commission of further crimes, were they provided with a moderate sum of money, he therefore bequeathed $500 to the penitentiary, on condition that the citizens should make further contributions for that purpose before the expiration of six months; but no additions were made towards establishing said fund.

Shee. In the article on him, it was erroneously stated that he died in 1830. He is at present president of the royal academy.

Sheldrakes. (See *Duck*.

Sheribon. (See *Cheribon*.,

Shippen, William, was born in 1736, in Philadelphia, and was the son of an eminent physician. He graduated, in 1754, at the college of New Jersey. He delivered the valedictory oration at the commencement, when he took his bachelor's degree, and acquitted himself so well, that the celebrated preacher Whitefield, who happened to be present, addressed him publicly, and, declaring that he had never heard better speaking, urged him to devote himself to the pulpit. His inclinations, however, led him to the study of medicine; and, after prosecuting it for three years, under the care of his father, he went to Europe, at the age of twenty-one. He continued his studies at London, paying particular attention to comparative anatomy, under the guidance of the famous John Hunter (in whose family he resided), and also to midwifery. He then went to Edinburgh, where he took his medical degree. In 1762, he returned to his native country. In the autumn of the same year, his first course of anatomy began. He gave three courses unconnected with any institution, when, in 1765, a medical school was established under the auspices of the college of Philadelphia, and he was chosen professor of anatomy and surgery. His anatomical lectures were regularly delivered until the winter of 1775, when they were suspended by the revolution. In 1776, he entered the medical department of the army, and, in 1781, resigned the post of director-general of that department, to which he had been a second time appointed. He had, previously, in 1778, resumed his lectures. During ten or twelve years subsequently, he continued to practise, with great success, as an *accoucheur*, surgeon and physician; but the death of an only son, in 1798, affected him so much as to cause his almost entire abandonment of his duties as a practitioner and lecturer. He partially recovered his spirits, and delivered a course of lectures in 1807; but his health was greatly broken, and in July, 1808, he died at Germantown. As a lecturer, especially as a demonstrator of anatomy, doctor Shippen was highly distinguished; and as a physician he ranked with the first of the day.

Shuben Acadie. (See *Acadia*.)

Side-Saddle Flower. (See *Sarracenia*.)

Sieyes died at Paris, Nov. 30, 1830, in the eighty-second year of his age.

Siglæ. (See *Abbreviations*.)

Singapura. (See *Sincapore*.)

Skypetars. (See *Albania*.)

Slide is the name given to an inclined plane for facilitating the descent of heavy bodies by the force of gravity. In general, they have been objects of no great importance; but one erected, some years since, at Alpnach, in Switzerland, excited great interest throughout Europe. For many ages, the craggy sides and the deep ravines of Pilatus, a lofty mountain near Lucerne, were thickly clothed with vast and impenetrable forests of spruce fir, of the largest size and the finest quality, surrounded on every side by the most terrific precipices, inaccessible to all but a few daring hunters, who, at the risk of their lives, scaled these precipitous rocks and crags, in pursuit of the chamois. It was from these bold adventurers that the first intelligence was derived concerning the size of the trees, and the extent of the forests, until a foreigner, who had visited their sequestered glades and gloomy recesses, in pursuit of the chamois, was struck with amazement at the sight, and pointed out to the attention of several Swiss gentlemen the vast extent and superior quality of the timber. The project of making use of these rich natural stores was, however, rejected as chimerical, by persons whose experience and skill made them competent to judge; and it was, consequently, abandoned. This attempt having failed, these immense and valuable forests would, in all probability, have been suffered to flourish and decay, without ever being applied to the use of man, if it had not been for the enterprising genius and the unwearied exertion of M. Rupp, a native of Wirtemberg, who, owing to some political changes which had taken place in his own country, had settled near the lake of Lucerne. His curiosity being strongly excited by the accounts he had heard of the forest, he was induced to visit it. He was so much struck by its wonderful appearance, that he entertained the idea of being able to convey the trees into the lake of Lucerne, solely by their own gravity. During his long residence in Switzerland, his character and talents were so much appreciated, that, with the assistance of three Swiss gentlemen, he soon formed a company from among the proprietors, with a joint stock, to enable them to purchase the forest, and to construct a road or slide, down which it was intended the trees should be precipitated in the lake of Lucerne, an arm of which washed the bottom of the mountain, from which they could be easily conveyed by the Rhine to any part of the German ocean. This stupendous undertaking was finished in 1816. The slide of Alpnach was composed of between 25,000 and 30,000 large pine trees, squared by the axe, and formed into a sort of trough, about six feet broad, and from three to six feet deep. In the bottom of the trough there was a groove for the reception of a small stream of water, let in over the side of the trough every now and then, in order to keep the whole structure moist, and thereby to diminish the excessive friction occasioned by the rapidity of the descent of the tree. The slide was sustained by cross timbers; and these cross timbers were themselves supported by uprights fixed into the ground. It was sometimes carried along the faces of the most rocky eminences; sometimes it went under ground; and again it crossed the deepest ravines, where it was supported by scaffoldings 120 feet high. The skill and ingenuity which were displayed, and the difficulties which were surmounted, in this vast undertaking, gained a just tribute of admiration to the enterprising individual who projected and carried it through. Before the work could even be begun, it was necessary to cut down many thousand trees, to obtain a passage for the laborers through the impassable thickets; and M. Rupp was himself frequently obliged to descend the steepest precipices, suspended by ropes, at the imminent hazard of his life; and though he was attacked by a violent fever, yet his ardor was so great that he had himself conveyed every day, on a barrow, to the mountain, in order to superintend the operations of his workmen. The expense attending this undertaking was, according to one account, £9000 or £10,000; but according to another, only £4250. Before the trees were launched into the slide, some previous preparation was necessary, which consisted in lopping off the branches, and stripping them of the bark, that they might descend with the greater ease. Every thing being prepared, the tree was introduced into the trough, with the root foremost; and it descended with such velocity as to reach the lake in six minutes, a distance of about three leagues, or nine miles; but the largest trees performed the same distance in about three minutes. In order to prevent the accidents which might take place if the tree was let off before every thing was ready at the lower end, a regular telegraphic communication was established between the two extremities of the slide; and workmen were posted at regular distances of about a mile from each other, and so arranged that every station should be visible from the ones both above and below it. When the tree was launched, the workmen at the upper end hoisted their telegraph (which consisted of a board turning at its middle on a horizontal axle; the board, when placed upright, was visible from the two stations above and below it, but when it was turned horizontally, it was not perceptible from either); the same signal was repeated by all the rest in succession, so that the workmen at the lower end of the trough received intimation of the approach of the tree almost instantaneously.

In a few minutes, the tree came thundering past the men, and plunged into the lake. The lowest board was then turned down, which was followed immediately by all the rest; and thus the workmen at the top were informed of the safe descent of the tree. The same operation was repeated during the rest of the day; and it was so arranged that a tree should descend every five or six minutes. When the progress of the tree was impeded by any obstacle, or when it started out of the trough, the board was only half depressed; and as the workmen knew by this signal that something was wrong, those who occupied the stations above and below the place where the tree had struck, came and assisted in removing the obstruction, which was generally occasioned by the springing of a beam in the trough. In order to prove the enormous force which the trees acquired by the rapidity of their descent, M. Rupp caused some of them to spring from the trough. The result was, that they penetrated the earth by their thickest ends to the depth of eighteen and sometimes twenty-four feet; and one of them having accidentally come in contact with another, cleft it from top to bottom, with the violence and rapidity of lightning. In order that none of the small wood might be lost, M. Rupp constructed several extensive manufactories in different parts of the forest, for the purpose of reducing it to charcoal. He also built magazines for preserving it when made. The trees, after having reached the lake, were made up into rafts, and floated down the Reuss, by the Aar, into the Rhine. By this rapid conveyance, they generally arrived at Basle a few days after they had left Lucerne. At Basle they passed out of the hands of the company. They were still floated down the Rhine in rafts to Holland; and thus performed a journey of about 4000 miles, in less than a month from the time they left Pilatus, until they arrived at the German ocean. We are sorry to add, that this stupendous work of art is now totally destroyed, and that almost every trace of it is obliterated on mount Pilatus. The great demand which formerly existed for the timber having entirely ceased, owing to political causes, the cutting and transporting of the timber was necessarily discontinued, and the slide was suffered to go to ruin. (See Playfair's *Works*, vol. i, Appendix, No. 2, p. 89.)

Sloe. (See *Plum.*)

Smalley, John, doctor of divinity, an eminent Congregational clergyman of Connecticut, was born at Lebanon, in that state, June 4, 1734. He took his degree at Yale college, in 1756, and, in 1758, was ordained pastor of the second society in Berlin, a situation which he retained until his death, June 1, 1820, in the eighty-sixth year of his age. In 1760, he published his Sermons on Natural and Moral Inability, which were soon after republished in England. A translation of them also was made, it is believed, in Germany. His other works are two Discourses on Universal Salvation; a *Concio ad Clerum;* an Election Sermon; and Sermons (in 2 vols., 8vo.).

Smallwood, William, a governor of Maryland, served with great distinction in the revolutionary war. In 1776, he received the appointment of brigadier-general, and was present, with the brigade of Maryland troops under his command, at the battles on Long Island, near Camden, and at Germantown. In 1785, he was elected a delegate to congress, and, the same year, governor of the state. His death occurred in February, 1792.

Smeaton, John, an eminent civil engineer, was born May 28, 1724, at Austhorpe, near Leeds. The strength of his understanding and the originality of his genius appeared at an early age. His father was an attorney; and being desirous to bring up his son to the same profession, he carried him to London, in 1742, where he attended the courts in Westminster hall; but, after some time, finding that the law was not suited to his disposition, he wrote a strong memorial to his father on the subject, who immediately desired the young man to follow the bent of his inclination. In 1751, he began a course of experiments to try a machine of his own invention, to measure a ship's way at sea, and made two voyages, in company with doctor Knight, to try the effect of it, and also for the purpose of making experiments on a compass of his own construction, which was rendered magnetical by doctor Knight's artificial magnets. In 1753, he was elected a fellow of the royal society; and a number of papers which he published in their Transactions, show how highly he deserved the honor. In 1755, the Eddystone light-house was burnt down, and Mr. Smeaton being recommended to the proprietors of that building as an engineer in every way calculated to rebuild it, he undertook the work, which was completed in 1759, much to the satisfaction of the parties concerned. (See *Light-House.*) After this, Mr. Smeaton was employed on many works of great public utility. He made the river Calder navigable—a work that required talents of the very first order, owing to the impetuous floods in that river; and planned and attended to the execution of the great canal in Scotland, for conveying the trade of the country either to the Atlantic or German ocean. Mr. Smeaton was appointed engineer to Ramsgate harbor, and brought it into a state of great utility by various operations, of which he published an account in 1791. He constructed a variety of mills, built a steam-engine at Austhorpe, and made a vast number of experiments with it to ascertain the power of Newcommen's engine (see *Steam-Engine*), which he improved and brought to a far greater degree of perfection, both in its construction and powers, than it had before. During many years of his life, he was a frequent attendant upon parliament, his opinion on various works, begun or projected, being continually called for. He died in 1792. He was fond of science for its own sake, and spent much of his leisure in the study of astronomy; for which purpose, he fitted up an observatory, in his house, furnished with curious contrivances of his own invention. He was a friend and encourager of merit wherever he discerned it; and many persons were indebted to him for important assistance on entrance into life. Mr. Smeaton was the institutor, in 1771, of a society of civil engineers, which was dissolved at his death, but afterwards renewed. They published, in 1797, a volume of his Reports. (For his labors in constructing bridges, mills, harbors, engines, &c., see his *Reports*, in 3 vols., 4to.) Of his inventions and improvements of philosophical instruments, an idea may be formed from the list of his writings, which is inserted in Hutton's Dictionary.

Smew. (See *Merganser*.)

Solway Moss; a tract of land in Cumberland, celebrated for an eruption of a very remarkable kind, which is thus described by Mr. Gilpin:—"Solway moss is a flat area about seven miles in circumference. The substance of it is a gross fluid, composed of mud and the putrid fibres of heath, diluted by internal springs, which arise in every part. The surface is a dry crust, covered with moss and rushes, offering a fair appearance over an unsound bottom, shaking with the least pressure. Cattle, by instinct, know and avoid it. Where rushes grow, the bottom is soundest. The adventurous passenger, therefore, who sometimes, in dry seasons, traverses this perilous waste, to save a few miles, picks his cautious way over the rushy tussocks as they appear before him. If his foot slips, or if he ventures to desert this mark of security, it is possible he may never more be heard of. On the south, Solway moss is bounded by a cultivated plain, which declines gently, through the space of a mile, to the river Esk. This plain is lower than the moss, being separated from it by a breastwork formed by digging peat, which makes an irregular, though perpendicular line of low, black boundary. It was the bursting of the moss through this peat breastwork, over the plains between it and the Esk, that occasioned the dreadful inundations that destroyed so large a district. The more remarkable circumstances relating to this calamitous event, were these: On the thirteenth of November, 1771, in a dark, tempestuous night,* the inhabitants of the plain were alarmed with a dreadful crash, which they could no way account for: many of them were then in the fields, watching their cattle, lest the Esk, which was then rising violently in the storm, should carry them off. In the mean time, the enormous mass of fluid substance, which had burst from the moss, moved slowly on, spreading itself more and more as it got possession of the plain. Some of the inhabitants, through the terror of the night, could plainly discover it advancing like a moving hill. This was, in fact, the case; for the gush of mud carried before it, through the first two or three hundred yards of its course, a part of the breastwork, which, though low, was yet several feet in perpendicular height; but it soon deposited this solid mass, and became a heavy fluid. One house after another it spread round, filled, and crushed into ruins, just giving time to the terrified inhabitants to escape. Scarcely any thing was saved except their lives; nothing of their furniture, few of their cattle. Some people were even surprised in their beds, and had the additional distress of flying naked from the ruins. The morning light explained the cause of this amazing scene of terror, and showed the calamity in its full extent; and yet, among all the conjectures of that dreadful night, the mischief that really happened had never been supposed. Lands which, in the evening, would have let for twenty shillings an acre, in the morning were not worth sixpence. On this well-cultivated plain, twenty-eight families had their dwellings and little farms, every one of which, except, perhaps, a few who lived near the skirts of it, had the world totally to begin again. Who could have imagined that a breastwork which had stood for ages should at length give way? or that these subterraneous floods, which had been bedded in darkness since the memory of man, should ever have burst from their black abode? This dreadful inundation, though the first shock of it was most tremendous, continued still spreading for many weeks, till it covered the whole plain, an area of 500 acres, and, like molten lead poured into a mould, filled all the hollows of it, lying, in some parts, thirty or forty feet deep, reducing the whole to one level surface." (Gilpin's *Observations on the Mountains and Lakes of Cumberland.*)—In order to clear the arable and pasture land of this accumulation of moss, Mr. Wilson, from Yorkshire, adopted a very ingenious plan. He formed, in the higher grounds, two large reservoirs, which he filled with water, the whole force of which he directed against a large knoll in front of Netherby house, and afterwards against the accumulated masses, which he succeeded in washing away into the channel of the Esk. Doctor Graham, of Netherby, had sent for a person to survey the ground, and estimate the expense of removing the moss in the ordinary way. The estimate was £1300; but while the matter was under consideration, Wilson suggested that it might be done cheaper; and by the method which we have mentioned, he effected it for less than £20.—Another account of the eruption of this moss, by Mr. J. Walker, of Moffat, will be found in the Philosophical Transactions for 1772, vol. lxii, p. 123. According to Mr. Walker, the mossy ridge was reduced no less than twenty-five feet; but what is not easily explained, he makes the eruption take place on the sixteenth of December, 1772, whereas Gilpin places it on the thirteenth of November, 1771. Mr. Walker mentions the remarkable case of a cow, the only one, out of eight in the same byre, that was saved. It had stood sixty hours up to the neck in mud and water; and when it was taken out, it did not refuse to eat, but it would not taste water, nor even look at it, without manifest signs of horror. It was soon, however, reconciled to it, and was then likely to recover.

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* Three days' rain, of unusual violence, preceded the eruption.

Sorbetto. (See *Sherbet.*)

Spanish Black. (See *Oak.*)

Spasm (from σπαω, to draw); a cramp, or convulsion. An involuntary contraction of the muscular fibres, or that state of the contraction of muscles which is not spontaneously disposed to alternate with relaxation, is properly termed *spasm*. When the contractions alternate with relaxation, and are frequently and preternaturally repeated, they are called *convulsions*. Spasms are distinguished by authors into *clonic* and *tonic* spasms. In clonic spasms, which are the true convulsions, the contractions and relaxations are alternate, as in epilepsy; but in tonic spasms, the member remains rigid, as in locked jaw. (See *Convulsion*, and *Tetanus*.)

Spasmodic Cholera. (See *Cholera*, in this Appendix.)

Spectres. (See *Visions.*)

Sphene. (See *Titanium.*)

Spinning Frame. (See *Cotton Manufacture.*)

Spirits. (See *Visions.*)

Spirits, Familiar. (See *Familiar Spirits.*)

Spurzheim, Gaspard. Since the publication of the eleventh volume, which contained an imperfect notice of this distinguished man, he has visited this country, and paid the great debt of nature in the midst of us. He arrived in the U. States in August, 1832, with the intention of remaining about two years in the country, lecturing in the principal towns, and visiting the different tribes of Indians within our territory. He began his lectures in Boston, where he delivered one course on the anatomy of the brain, designed principally for medical men. He had nearly, likewise, completed two popular courses of lectures on phrenology, one in Cambridge, and the other in Boston, when death interrupted his labors, Nov. 10, 1832. From the beginning of his popular course in Boston, the number of his hearers continually increased, and, towards the latter part of the time, had become so great that it was found necessary to change the room in which they were commenced for a larger hall. Doctor Spurzheim had, during his short residence in Boston, won the affection of a large number of his hearers, by the urbanity and gentleness of his manners, and the benevolence and enlarged philanthropy of his sentiments and disposition, while his elevated morality and scientific acquirements commanded the general respect. His funeral obsequies were, therefore, solemnized in one of the churches of that city; and a eulogy was pronounced over his remains by professor Follen, of Harvard university. His body, which had been embalmed, was deposited in such a situation that it might be transmitted to his friends in Europe, if desired, with the intention that it should otherwise be permanently entombed at Mount Auburn, and that a monument should be erected over it at the public expense. The following works of doctor Spurzheim have been republished in Boston:—Phrenology, or the Doctrine of the Mental Phenomena (2 vols.); Outlines of Phrenology; Elementary Principles of Education; and Philosophical Catechism of the Natural Laws of Man. From doctor Follen's Funeral Oration (published in Boston, in 1832) we extract the following additional notices of doctor Spurzheim's life:—He was the son of a farmer, and received his classical education at the college of Treves, being destined, by his friends, for the profession of theology. In consequence of the war, in 1795, the students of that college were dispersed, and Spurzheim went to Vienna. Here he devoted himself to the study of medicine, and became the pupil, and afterwards the associate, of doctor Gall, who was at that time established as a physician at Vienna. (See our articles *Gall*, and *Phrenology*, in the body of the work.) It was here, in 1800, that Spurzheim first attended a private course which doctor Gall had repeated from time to time, during the four preceding years, in order to explain, to a select audience, his new theory of the organs and functions of the brain. The dissection of the brain itself still remained very imperfect until 1804, when Spurzheim became his associate, and undertook especially the anatomical department. From that time, in their public as well as in private demonstration of the brain, Spurzheim always made the dissections, and Gall explained them to the audience. The great interest excited by these lectures in Vienna, and throughout Germany, roused the fears of that inveterate enemy of all innovations, the government of Austria. An imperial decree, which prohibited all private lectures unless by special permission, silenced the two teachers, and induced them, in 1805, to quit Vienna. They travelled together through Germany, explaining and demonstrating their physiological discoveries in the principal universities and cities, particularly in Berlin, Dresden, Halle and Munich. Their anatomical demonstrations excited, every where, great interest and applause. The peculiar physiological doctrine on the organization of the brain being adapted to various innate qualities of the mind, found many opposers, but also some warm adherents, and gave rise to a great number of publications, in which the subject was discussed. In the year 1807, Gall and Spurzheim went to Paris, where they demonstrated their theory of the brain, in the presence of Cuvier, and before many other distinguished men. Cuvier, at first, expressed his approbation of the general features of the new doctrine, but, in a report to the institute on the subject, in 1808, spoke of it with less favor. In Paris, they published their great work on the Anatomy and Physiology of the Nervous System (1810), and continued to lecture and labor together till 1813, when Spurzheim went to England, and began to lecture in London. Mr. Abernethy acknowledged the superiority of his anatomical demonstration over the previous mode of dissecting the brain. After lecturing in several cities of England and Ireland, doctor Spurzheim went to Edinburgh, where he was particularly desirous of exhibiting his demonstrations and explaining his doctrines, in consequence of the appearance of an abusive article on phrenology, in the Edinburgh Review (June, 1815). During the three years which he spent in England, he published several of his works on phrenology, among which was one under the title of the Physiognomical System. In 1817, he returned to Paris, where he gave lectures on the anatomy, physiology and pathology of the brain, and also devoted himself to the practice of medicine; and, in 1821, became doctor of medicine of the university of Paris. In 1825, he again visited England, where he lectured to crowded audiences; and, in 1828, once more returned to Paris. There he again renewed his lectures; and he remained there till his visit to this country.

Stars, Fixed. (See *Fixed Stars*.)

Steenwyck. (See *Stenwyck*.)

Stirrup. The ancients were not acquainted with the use of this convenient article of equestrian costume, the emperor Mauritius, who flourished towards the end of the sixth century, being the first writer who makes mention of it, in his Treatise on the Military Art. The Roman youth were accustomed to leap upon their horses sword or lance in hand. A jasper, explained by Winckelmann; a *basso-rilievo*, engraved by Roccheggiani; and the painting of a Greek vase, published in Millin's *Recueil de Monumens*, all exhibit warriors mounting on horseback by the help of a cramp-iron attached to the pike or lance. Distinguished persons and old men had servants to place them on their horses, and conquered sovereigns were often compelled to perform this office for their vanquishers. Caius Gracchus caused to be placed at certain distances along the high roads, after the example of the Greeks, large stones to assist the horsemen in mounting.

Stone, John Hoskins, governor of Maryland, distinguished himself in the revolution. In early life, and at an early period of the war, he was first captain in the celebrated regiment of Smallwood. At the battles of Long Island, White Plains and Princeton, he behaved with great gallantry; and, at that of Germantown, he received a wound which disabled him for the residue of his life. But he still exerted himself in the service of his country, as a member of the executive council of Maryland, until 1794, when he was chosen governor, and remained so for three years (as long a time as was allowed by the constitution). He died at Annapolis, in 1804, leaving behind him the reputation of an honest and honorable man, an intrepid soldier, and a liberal, hospitable and friendly citizen.

Strength of Materials. [The following article is extracted from Arnott's *Elements of Physics*.] "*Strength depends on the magnitude, form and position of bodies, as well as on the degree of cohesion in the material.*"—*Of similar bodies the largest is proportionally the weakest.* Suppose two blocks of stone left projecting from a rock that has been hewn, of which blocks one is twice as long, and deep, and broad, as the other. The larger one will by no means support as much more weight at its end than the other, as it is larger; and for two reasons: 1. In the larger, each particle of the surface of attachment, in helping to bear the weight of the block itself, has to support by its cohesion twice as many particles beyond it, in the double extent of projection, as a particle has to support in the shorter block; and, 2. both the additional substance, and any thing appended at the outer extremity of the larger, are acting with a double lever advantage to break it, that is, to destroy the cohesion. Hence, if any such projection be carried out very far, it will break off or fall by its own weight alone. What is thus true of a block supported at one end, is equally true of a block supported at both ends, and, indeed, of all masses, however supported, and of whatever forms. That a large body, therefore, may have proportionate strength to a smaller, it must be made still thicker and more clumsy than it is made longer; and, beyond a certain limit, no proportions whatever will keep it together, in opposition merely to the force of its own weight. This great truth limits the size and modifies the shape of most productions of nature and of art,—of hills, trees, animals, architectural or mechanical structures, &c.

Hills. Very strong or cohesive material may form hills of sublime elevation, with very projecting cliffs and very lofty perpendicular precipices; and such are seen, accordingly, where the hard granite protrudes from the bowels of the earth, as in the Andes of America, the Alps of Europe, the Himalayas of Asia, and the Mountains of the Moon in Central Africa. But material of inferior strength exhibits more humble risings and more rounded surfaces. The gradation is so striking and constant from granite mountains down to those of chalk, or gravel, or sand, that the geologist can generally tell the substance of which a hill is composed by the peculiarities of its shape. Even in granite itself, which is the strongest of rocks, there is a limit to height and projection; and, if an instance of either, much more remarkable than now remains on earth, were by any chance to be produced again, the law which we are considering would prune the monstrosity. The grotesque figures of rocks and mountains seen in the paintings of the Chinese, or actually formed in miniature for their gardens, to express their notions of perfect sublimity and beauty, are caricatures of nature, for which originals can never have existed. Some of the smaller islands in the Eastern ocean, however, and some of the mountains of the chains seen in the voyage towards China, along the coasts of Borneo and Palawan, exhibit, perhaps, the very limits of possibility in singular shapes. In the moon, where the weight or gravity of bodies is less than on the earth, on account of her smaller size, mountains might be many times higher than on the earth; and observation proves that the lunar mountains are much higher than ours. By the action of winds, rains, currents and frost upon the mineral masses around us, there is unceasingly going on an undermining and wasting of supports, so that every now and then immense rocks, or almost hills, are torn by gravity from the station which they have held since the earth received its present form, and fall in obedience to the law now explained.

The size of vegetables, of course, is obedient to the same law. We have no trees reaching a height of 300 feet, even when perfectly perpendicular, and sheltered in forests that have been unmolested from the beginning of time; and oblique or horizontal branches are kept within very narrow limits by the great strength required to support them. The truth that, to have proper strength, the breadth or diameter in bodies must increase more quickly than the length, is well illustrated by the contrast existing between the delicate and slender proportions of a young oak or elm, while yet in the seedsman's nursery, and its sturdy form when it has braved for centuries all the winds of heaven, and has become the monarch of the park or forest.

Animals furnish other interesting illustrations of this law. How massive and clumsy are the limbs of the elephant, the rhinoceros, the heavy ox, compared with the slender forms of the stag, antelope and greyhound! And an animal much larger than the elephant would fall to pieces from its own weight alone, unless its bones were made of much stronger materials. Many have questioned whether the mammoth, or antediluvian elephant, could have lived on dry land, or must have been amphibious, that its great body might generally be borne up by water. The whale is the largest of animals, but feels not its mighty weight because lying constantly in the liquid support of the ocean. A cat may fall with impunity where an elephant or ox would be dashed to pieces. The giants of the heathen mythology could not have existed upon this earth, for the reason which we are now considering; although on our moon, where, as already stated, weight is much less, such beings might be. In the planet Jupiter, again, which is many times larger than the earth, an ordinary man from hence would be carrying, in the simple weight of his body, a load sufficient to crush the limbs which supported him. The phrase *a little compact man*, points to the fact that such a one is stronger in proportion to his size than a taller man. The same law limits the height and breadth of architectural structures. In the houses of fourteen stories, which formerly stood under the castle of Edinburgh, there was danger of the superincumbent wall crushing the foundation.

Roofs. Westminster hall approaches the limit of width that is possible without very inconvenient proportions or central supports; and the domes of the churches of St. Peter, in Rome, and St. Paul, in London, are in the same predicament.

Arches of a Bridge. A stone arch much larger than those of the magnificent bridges in London, would be in danger of crushing and splintering its material.

Ships. The ribs or timbers of a boat have scarcely a hundredth part of the bulk of the timbers of a ship ten times as long as the boat. A ship's yard of ninety feet contains, perhaps, twenty times as much wood as a yard of thirty feet, and, even then, is not so strong in proportion. If ten men may do the work of a three-hundred-ton ship, many more than three times that number will be required to manage a ship three times as large. Very large ships, such as the two built in Canada in the year 1825, which carried each nearly 10,000 tons, are weak from their size alone; and the loss of these two first specimens of gigantic magnitude will not encourage the building of others like them.

The degree in which the strength of structures is dependent on the form and position of their parts, will be illustrated by considering the two cases of longitudinal and transverse compression; and the rule for giving strength will be found to be, to cause the force tending to destroy, to act, as equally as may be, on the whole resisting mass, at the same time, and with as little mechanical advantage as possible. In *longitudinal compression*, as produced by a body on the top of a pillar, the weight, while the support remains straight, can only destroy the support by crushing it in opposition to the repulsion and impenetrability of all its atoms. Hence a very small pillar, if kept perfectly straight, supports a very great weight; but a pillar originally crooked, or beginning to bend, resists with only part of its strength; for the whole weight above is supported on the atoms of the concave side only, which are therefore in greater danger of being overpressed and crushed, while those on the convex side, separated from their natural helpmates, are in the opposite danger of being torn asunder. The atoms near the centre, in such a case, are almost neutral, and might be absent without the strength of the pillar being much lessened. Long pillars or supports are weaker than short ones, because they are more easily bent; and they are more easily bent because a very inconsiderable, and therefore easily effected, yielding between each two of many atoms, makes a considerable bend in the whole; while in a very short pillar, there can be no bending without a great change in the relation of proximate atoms, and such as can be effected only by great force. The weight or force bending any pillar may be considered as acting at the end of a long lever, reaching from the end of the pillar to its centre, against the strength resisting at a short lever from the side to the centre. The strength, therefore, has relation to the difference between these. Shortness, then, or any stay or projection at the side of the pillar, which, by making the resisting lever longer, opposes bending, really increases the strength of a pillar. A column with ridges projecting from it is, on this account, stronger than one that is perfectly smooth. A hollow tube of metal is stronger than the same quantity of metal in a solid rod, because its substance, standing farther from the centre, resists with a longer lever. Hence pillars of cast-iron are generally made hollow, that they may have strength with as little metal as possible. In the most perfect weighing-beams for delicate purposes, that there may be the least possible weight with the required strength, the arms, instead of being of solid metal, are hollow cones, in which the metal is not much thicker than writing paper. Masts and yards for ships have been made hollow, in accordance with the same principle. In nature's works, we have to admire numerous illustrations of the same class. The stems of many vegetables, instead of being round externally, are ribbed or angular and fluted, that they may have strength to resist bending. They are hollow, also, as in cornstalks, the elder, the bamboo of tropical climates, &c., thereby combining lightness with their strength. A person who visits the countries where the bamboo grows, cannot but admire the almost endless uses to which its straightness, lightness and hollowness, make it applicable among the inhabitants. Being found of all sizes, it has merely to be cut into pieces of the lengths required for any purpose; and nature has already been the turner, and the polisher, and the borer, &c. In many of the Eastern islands, bamboo is the chief material of the ordinary dwellings, and of the furniture,—the fanciful chairs, couches, beds, &c. Flutes and other wind instruments there are merely pieces of the reed, with holes bored at the requisite distances. Conduits for water are pipes of bamboo; bottles and casks for preserving liquids are single joints of larger bamboo, with their partitions remaining; and bamboo, split into threads, is twisted into rope, &c. From the animal kingdom, also, we have illustrations of our present subject—the hollow stiffness of the quills of birds; the hollow bones of birds; the bones of animals generally, strong and hard, and often angular externally, with light cellular texture within, &c.—*Transverse Pressure.* When a horizontal beam is supported at its extremities, its weight bends it down more or less in the middle, the particles on the upper side being compressed, while the parts below are distended; and the bending and tendency to break are greater, according as the beam is longer and its thickness or depth is less. The danger of breaking, in a beam so situated, is judged of, by considering the destroying force as acting by the long lever reaching from the end of the beam to the centre, and the resisting force or strength as acting only by the short lever from the side to the centre, while only a little of the substance of the beam on the under side is allowed to resist at all. This last circumstance is so remarkable, that the scratch of a pin on the under side of a plank resting as here supposed, will sometimes suffice to begin the fracture. Because the resisting lever is small in proportion as the beam is thinner, a plank bends and breaks more readily than a beam, and a beam resting on its edge bears a greater weight than if resting on its side. Where a single beam cannot be found deep enough to have the strength required in any particular case—as for supporting the roof of a house—several beams are joined together, and in a great variety of ways, as is seen in house-rafters, &c., which, although consisting of three or more pieces, may be considered as one very broad beam, with those parts cut out which do not contribute much to the strength.—The *arched form* bears transverse pressure so admirably, because, by means of it, the force that would destroy, is made to compress all the atoms or parts at once, and nearly in the same degree. The atoms on the under side of an arch, resting against immovable abutments, must be compressed about as much as those on the upper side, and cannot therefore be torn or overcome separately. The whole substance of the arch, therefore, resists, almost like that of a straight pillar under a weight, and is nearly as strong. To be able to adapt the curve to the size of an arch, and to the nature of the material, requires in the architect a perfect acquaintance with measures, &c. An error which has been frequently committed by bridge-builders is, the neglecting to consider sufficiently the effect of the horizontal thrust of the arch on its piers. Each arch is an engine of oblique force, pushing the pier away from it. In some instances, one arch of a bridge falling, has allowed the adjoining piers to be pushed down towards it, by the thrust, no longer balanced, of the arches beyond, and the whole structure has given way at once, like a child's bridge built of cards. It is not known at what time the arch was invented, but it was in comparatively modern times. The hint may have been taken from nature; for there are instances, in alpine countries, of natural arches, where rocks have fallen between rocks, and have there been arrested and suspended, or where burrowing water has at last formed a wide passage under masses of rock, which remain balanced, among themselves, as an arch above the stream. Nothing can surpass the strength and beauty of some modern stone bridges—those, for instance, which span the Thames as it passes through London. Iron bridges have been made with arches twice as large as those of stone, the material being more tenacious, and calculated to form a lighter whole. That of three fine arches, between the city of London and Southwark, is a noble specimen; and, compared with the bridges of half a century ago, it appears almost a fairy structure of lightness and grace. The great domes of churches, as those of St. Peter's in Rome and St. Paul's in London, have strength on the same principle as simple arches. They are, in general, strongly bound at the bottom with chains and iron bars, to counteract the horizontal thrust of the superstructure. The Gothic arch is a pointed arch, and is calculated to bear the chief weight on its summit or key-stone. Its use, therefore, is not properly to span rivers as a bridge, but to enter into the composition of varied pieces of architecture. With what effect it does this, is seen in the truly sublime Gothic structures which adorn so many parts of Europe. The following are instances, in smaller bodies, of strength obtained by the arched form: A thin watch-glass bears a very hard push; a dished or arched wheel for a carriage is many times stronger to resist all kinds of shocks than a perfectly flat wheel; a full cask may fall with impunity where a strong square box would be dashed to pieces; a very thin globular flask or glass, corked and sent down many fathoms into the sea, will resist the pressure of water around it, where a square bottle, with sides of almost any thickness, would be crushed to pieces. We have an illustration, from the animal frame, of the arched form giving strength, in the cranium or skull, and particularly in the skull of man, which is the largest in proportion to its thickness: the brain required the most perfect security, and, by the arched form of the skull, this has been obtained with little weight. The common egg-shell is another example of the same class: what hard blows of the spoon or knife are often required to penetrate this wonderful defence provided for the dormant life! The weakness of a similar substance, which has not the arched form, is seen in a scale from a piece of freestone, which so readily crumbles between the fingers. To determine, for particular cases, the best forms of beams and joists, and of arches, domes, &c., is the business of strict calculation, and belongs, therefore, to mathematics, or the science of measures. It was a beautiful problem of this kind, which Mr. Smeaton, the English engineer, solved so perfectly in the construction of the far-famed Eddystone light-house. (See *Light-House*.)

STRENGTH, FEATS OF. Doctor Brewster, in his work on *Natural Magic*, gives some striking instances of muscular strength, and also of the effects produced by applying the principles of the mechanical powers to the human frame, from which we extract the following:—Firmus, a native of Seleucia, who was executed by the emperor Aurelian for espousing the cause of Zenobia, was celebrated for his feats of strength. In his account of the life of Firmus, who lived in the third century, Vopiscus informs us, that he could suffer iron to be forged upon an anvil placed upon his breast. In doing this, he lay upon his back, and, resting his feet and shoulders against some support, his whole body formed an arch, as we shall afterwards more particularly explain. Until the end of the sixteenth century, the exhibition of such feats does not seem to have been common. About the year 1703, a native of Kent, of the name of Joyce, exhibited such feats of strength in London and other parts of England, that he received the name of the *second Samson*. His own personal strength was very great; but he had also discovered, without the aid of theory, various positions of the body, in which men even of common strength could perform very surprising feats. He drew against horses, and raised enormous weights; but as he actually exhibited his power in ways which evinced the enormous strength of his own muscles, all his feats were ascribed to the same cause. In the course of eight or ten years, however, his methods were discovered, and many individuals of ordinary strength exhibited a number of his principal performances, though in a manner greatly inferior to Joyce. Some time afterwards, John Charles van Eckeberg, a native of Harzgerode, in Anhalt, travelled through Europe, under the appellation of *Samson*, exhibiting very remarkable examples of his strength. This, we believe, is the same person whose feats are particularly described by doctor Desaguliers. He was a man of the middle size, and of ordinary strength; and, as doctor Desaguliers was convinced that his feats were exhibitions of skill, and not of strength, he was desirous of discovering his methods; and, with this view, he went to see him, accompanied by the marquis of Tullibardine, doctor Alexander Stuart, and doctor Pringle, and his own mechanical operator. They placed themselves round the German so as to be able to observe accurately all that he did; and their success was so great, that they were able to perform most of the feats the same evening by themselves, and almost all the rest when they had provided the proper apparatus. Doctor Desaguliers exhibited some of the experiments before the royal society, and has given such a distinct explanation of the principles on which they depend, that we shall endeavor to give a popular account of them. 1. The performer sat upon an inclined board with his feet a little higher than his hips. His feet were placed against an upright board well secured. Round his loins was placed a strong girdle with an iron ring in front. To this ring a rope was fastened. The rope passed between his legs through a hole in the upright board, against which his feet were braced, and several men or two horses, pulling on the rope, were unable to draw him out of his place. 2. He also fastened a rope to a high post, and, having passed it through an iron eye fixed in the side of the post some feet lower down, secured it to his girdle. He then planted his feet against the post near the iron eye, with his legs contracted, and, suddenly stretching out his legs, broke the rope, and fell backwards on a feather bed. 3. In imitation of Firmus, he laid himself down on the ground, and when an anvil was placed upon his breast, a man hammered with all his force a piece of iron, with a sledge-hammer, and sometimes two smiths cut in two with chisels a great cold bar of iron laid upon the anvil. At other times, a stone of huge dimensions was laid upon his belly, and broken with a blow of the great hammer. 4. The performer then placed his shoulders upon one chair, and his heels upon another, forming with his back-bone, thighs and legs, an arch. One or two men then stood upon his belly, rising up and down while the performer breathed. A stone one and a half feet long, one foot broad, and half a foot thick, was then laid upon his belly and broken by a sledge-hammer—an operation which was performed with much less danger than when his back touched the ground. 5. His next feat was to lie down on the ground. A man being then placed on his knees, he drew his heels towards his body, and, raising his knees, he lifted up the man gradually, till, having brought his knees perpendicularly under him, he raised his own body up, and, placing his arms around the man's legs, rose with him, and set him down on some low table or eminence of the same height as his knees. This feat he sometimes performed with two men in place of one. 6. In his last, and apparently most wonderful performance, he was elevated on a frame work, and supported a heavy cannon placed upon a scale at some distance below him, which was fixed to a rope attached to his girdle. Previous to the fixing of the scale to the rope attached to his girdle, the cannon and scale rested upon rollers; but when all was ready, the rollers were knocked away, and the cannon remained supported by the strength of his loins. These feats may be briefly explained thus:—The feats No. 1, 2 and 6, depend entirely on the natural strength of the bones of the pelvis, which form a double arch, which it would require an immense force to break, by any external pressure directed to the centre of the arch; and as the legs and thighs are capable of sustaining four or five thousand pounds when they stand quite upright, the performer has no difficulty in resisting the force of two horses, or in sustaining the weight of a cannon weighing two or three thousand pounds. The feat of the anvil is certainly a very surprising one. The difficulty, however, really consists in sustaining the anvil; for when this is done, the effect of the hammering is nothing. If the anvil were a thin piece of iron, or even two or three times heavier than the hammer, the performer would be killed by a few blows; but the blows are scarcely felt when the anvil is very heavy, for the more matter the anvil has, the greater is its inertia, and it is the less liable to be struck out of its place; for when it has received by the blow the whole momentum of the hammer, its velocity will be so much less than that of the hammer as its quantity of matter is greater. When the blow, indeed, is struck, the man feels less of the weight of the anvil than he did before, because, in the reaction of the stone, all the parts of it round about the hammer rise towards the blow. This property is illustrated by the well-known experiment of laying a stick with its ends upon two drinking glasses full of water, and striking the stick downwards in the middle with an iron bar. The stick will in this case be broken without breaking the glasses or spilling the water. But if the stick is struck upwards as if to throw it up in the air, the glasses will break if the blow be strong, and if the blow is not very quick, the water will be spilt without breaking the glasses. When the performer supports a man upon his belly, he does it by means of the strong arch formed by his back-bone and the bones of his legs and thighs. If there were room for them, he could bear three or four, or, in their stead, a great stone, to be broken with one blow. A number of feats of real and extraordinary strength were exhibited about a century ago, in London, by Thomas Topham, who was five feet ten inches high, and about thirty-one years of age. He was entirely ignorant of any of the methods for making his strength appear more surprising; and he often performed by his own natural powers what he learned had been done by others by artificial means. A distressing example of this occurred in his attempt to imitate the feat of the German Samson by pulling against horses. Ignorant of the method which we have already described, he seated himself on the ground, with his feet against two stirrups, and by the weight of his body he succeeded in pulling against a single horse; but in attempting to pull against two horses, he was lifted out of his place, and one of his knees was shattered against the stirrups, so as to deprive him of most of the strength of one of his legs. The following are the feats of real strength which doctor Desaguliers saw him perform.—1. Having rubbed his fingers with coal ashes to keep them from slipping, he rolled up a very strong and large pewter plate. 2. Having laid seven or eight short and strong pieces of tobacco-pipe on the first and third finger, he broke them by the force of his middle finger. 3. He broke the bowl of a strong tobacco-pipe, placed between his first and third finger, by pressing his fingers together sideways. 4. Having thrust such another bowl under his garter, his legs being bent, he broke it to pieces by the tendons of his hams, without altering the bending of his leg. 5. He lifted with his teeth, and held in a horizontal position for a considerable time, a table six feet long, with half a hundred weight hanging at the end of it. The feet of the table rested against his knees. 6. Holding in his right hand an iron kitchen poker three feet long and three inches round, he struck upon his bare left arm, between the elbow and the wrist, till he bent the poker nearly to a right angle. 7. Taking a similar poker, and holding the ends of it in his hands, and the middle against the back of his neck, he brought both ends of it together before him; and he then pulled it almost straight again. This last feat was the most difficult, because the muscles which separate the arms horizontally from each other, are not so strong as those which bring them together. 8. He broke a rope about two inches in circumference, which was partly wound about a cylinder four inches in diameter, having fastened the other end of it to straps that went over his shoulder. 9. Doctor Desaguliers saw him lift a rolling stone of about 800 pounds weight with his hands only, standing in a frame above it, and taking hold of a frame fastened to it. Hence doctor Desaguliers gives the following relative view of the strengths of individuals.

Strength of the weakest men,	125 lbs.
Strength of very strong men, .	400 "
Strength of Topham, ...	800 "

The weight of Topham was about 200 lbs.

One of the most remarkable and inexplicable experiments relative to the strength of the human frame, is that in which a heavy man is raised with the greatest facility, when he is lifted up the instant that his own lungs and those of the persons who raise him are inflated with air. The heaviest person in the party lies down upon two chairs, his legs being supported by the one and his back by the other. Four persons, one at each leg, and one at each shoulder, then try to raise him; and they find his dead weight to be very great, from the difficulty they experience in supporting him. When he is replaced in the chair, each of the four persons takes hold of the body as before, and the person to be lifted gives two signals by clapping his hands. At the first signal, he himself and the four lifters begin to draw a long and full breath; and when the inhalation is completed, or the lungs filled, the second signal is given for raising the person from the chair. To his own surprise and that of his bearers, he rises with the greatest facility, as if he were no heavier than a feather. When one of the bearers performs his part ill, by making the inhalation out of time, the part of the body which he tries to raise is left, as it were, behind. Among the remarkable exhibitions of mechanical strength and dexterity, we may enumerate that of supporting pyramids of men. This exhibition is a very ancient one. It is described, though not very clearly, by the Roman poet Claudian; and it has derived some importance in modern times, in consequence of its having been performed in various parts of Great Britain by the celebrated traveller Belzoni, before he entered upon the more estimable career of an explorer of Egyptian antiquities. The simplest form of this feat consists in placing a number of men upon each other's shoulders, so that each row consists of a man fewer, till they form a pyramid terminating in a single person, upon whose head a boy is sometimes placed with his feet upwards.

Striped Snake. (See *Serpent.*)

Sycamore. (See *Plane-Tree.*)

T.

Tacamahac. (See *Poplar.*)

Tallevas. (See *Shield.*)

Tarabosan. (See *Trebisond.*)

Tautog. (See *Black-Fish.*)

Tenterden, lord, died in November, 1832.

Tergouw. (See *Gouda.*)

Tessel. (See *Texel.*)

Testimony. (See *Evidence.*)

Thorax. (See *Chest.*)

Thorn, Egyptian. (See *Acacia.*)

Thug. (See *Phansygurs*, in this Appendix.)

Tierra del Fuego. (See *Terra del Fuego.*)

Tin Glass. (See *Bismuth.*)

Tofana. (See *Aqua Tofana.*)

Tombac. (See *Copper.*)

Topaz. (See *Quartz.*)

Torino. (See *Turin.*)

Trustee Process. (See *Attachment, Foreign.*)

Tumble Bug. (See *Beetle.*)

Turkey Buzzard. (See *Buzzard.*)

Turmagaunt. (See *Termagaunt.*)

U.

Uhlans. (See *Ulans.*)

V.

Vacantivi. (See *Schools*, vol. xii, page 251.)

Van der Does. (See *Dousa.*)

Vanglo. (See *Sesamum Orientale.*)

Velchi. (See *Acheron.*)

Verbanus. (See *Lago Maggiore.*)

Verd Antique. (See *Marble.*)

Vijaya Puri. (See *Bija-pur.*)

Vilvao. (See *Bilboa.*)

Vine-Fretters, or Aphides. (See *Ants.*)

Viper's Grass. (See *Salsafy.*)

Virtues, Cardinal. (See *Cardinal Virtues.*)

Vitalians. (See *Apollinarians.*)

Vitriol. (For *Green Vitriol*, see *Copperas*; for *Blue Vitriol*, see *Copper.*)

Voltaic Pile. (See *Galvanism.*)

Voulgarians. (See *Bulgarians.*)

Vulcanian Hypothesis. (See *Geology.*)

W.

Wahoo. (See *Elm.*)

Waifs. (See *Estrays.*)

Wake. (See *Late Wake.*)

Wakefield, Priscilla, died in August, 1832, at the age of eighty-two years.

Wardship, Feudal. (See *Tenures.*)

Warnefrid. (See *Paul the Deacon.*)

Waterlanders. (See *Anabaptists.*)

Water Snake. (See *Serpent.*)

Ways. (See *Ship.*)

Weathercock. (See *Vane.*)

Werst. (See *Measures.*)

Wharra-Tree. (See *Screw-Pine.*)

Whispering Galleries. In whispering galleries, or places where the lowest whispers are carried to distances at which the direct sound is inaudible, the sound may be conveyed in two ways, either by repeated reflections from a curved surface in the direction of the sides of a polygon inscribed in a circle, or where the whisperer is in the focus of one reflecting surface, and the hearer in the focus of another reflecting surface, which is placed so as to receive the reflected sounds. The first of these ways is exemplified in the whispering gallery of St. Paul's, and in the octagonal gallery of Gloucester cathedral, which conveys a whisper seventy-five feet across the nave, and the second in the baptistery of a church in Pisa, where the architect Giovanni Pisano is said to have constructed the cupola on purpose.

The cupola has an elliptical form; and when a person whispers in one focus, it is distinctly heard by the person placed in the other focus, but not by those who are placed between them. The sound first reflected passes across the cupola, and enters the ears of the intermediate persons; but it is too feeble to be heard, till it has been condensed by a second reflection to the other focus of the ellipse. A naval officer, who travelled through Sicily in the year 1824, gives an account of a powerful whispering place in the cathedral of Girgenti, where the slightest whisper is carried, with perfect distinctness, through a distance of 250 feet, from the great western door to the cornice behind the high altar. By an unfortunate coincidence, the focus of one of the reflecting surfaces was chosen for the place of the confessional; and, when this was accidentally discovered, the lovers of secrets resorted to the other focus, and thus became acquainted with confessions of the gravest import. This divulgence of scandal continued for a considerable time, till the eager curiosity of one of the *dilettanti* was punished by hearing his wife's avowal of her own infidelity. This circumstance gave publicity to the whispering peculiarity of the cathedral; and the confessional was removed to a place of greater secrecy. (See Brewster's *Natural Magic.*)

WHITEBACKS. (See *Duck.*)

WHITEWOOD. (See *Tulip-Tree.*)

WILD BOAR. (See *Hog.*)

WILMOT, John. (See *Rochester, Earl of.*)

WINDHAM, William, a senator and statesman of some eminence, was the son of colonel Windham, of Felbrigge, in Norfolk. He was born in London, in 1750, and educated at Eton, whence he was removed first to the university of Glasgow, and subsequently to University college, Oxford. He entered parliament in 1782, as member for Norwich, at which time he was secretary to the earl of Northington, lord-lieutenant of Ireland. He sided with the opposition, until the celebrated secession from the whig party in 1793, when he followed the lead of Mr. Burke, and was appointed secretary at war, with a seat in the cabinet. This office he retained until the resignation of Mr. Pitt, in 1801, and distinguished himself by his opposition to the ephemeral treaty of Amiens. On Mr. Addington's being driven from the helm, in 1805, a new administration was again formed by Mr. Pitt, which was terminated by his death in 1806, when lord Grenville, in conjunction with Mr. Fox, made up the administration well known by the designation of "all the talents." In this short-lived cabinet Mr. Windham held the post of secretary of war and colonies, in which capacity he carried into a law his bill for limited service in the regular army. His death took place in 1810, in consequence of a contusion of the hip, produced by a fall. The eloquence of Mr. Windham was forcible, pointed, and peculiar, and he produced considerable impression, both as an orator and a statesman, although, perhaps, rather by the honest ardency of many of his strong opinions, than by their political or philosophical accuracy. He was a sound scholar, and highly esteemed in private life.

WINNEBAGOES. (See *Indians, American.*)

WITHERITE. (See *Barytes.*)

WITHERSPOON, John, is at the end of this Appendix.

WOODBINE. (See *Honeysuckle.*)

WOODCHUCK. (See *Marmot.*)

WORCESTER; capital of Worcester county, Massachusetts, 40 miles north-north-west of Providence, 40 west by south of Boston, 420 from Washington; population in 1830, 4271; valuation, $2,357,896. It is a neat and flourishing town, with considerable trade and manufactures. Among the public buildings are a court-house, jail, county penitentiary, lunatic hospital, town-hall, four meeting-houses, three for Congregationalists and one for Baptists. There are three printing-offices, from which four newspapers are issued weekly. The American antiquarian society, founded and endowed by the late Isaiah Thomas, LL. D., have a handsome hall, a valuable cabinet, and a library of about 8000 volumes, containing many ancient and rare books and works on American history, to which strangers are freely admitted. The Blackstone canal extends from Worcester along the valley of the Blackstone river, forty-five miles, to Providence. A rail-road from Boston to Worcester has been commenced. The town, called *Quinsigamond* by the natives, was granted, in 1668, to major-general Daniel Gookin and others. The first planting was begun in 1674. The inhabitants having been twice driven away by the Indian wars, the third and permanent settlement was commenced in 1713. The town was incorporated in 1722, and on the erection of Worcester county, in 1732, became the capital.

WOU-WOU. (See *Ape.*)

Y.

Yack. (See *Ox.*)

Yellow Fever. This fever is one of specific character, and confined to situations in which great moisture is joined with great heat. It prevails in the West Indies, certain parts of Asia, South America, occasionally in the northern parts of North America, and pretty constantly in the southern. It is endemial in many portions of the globe, and especially in the tropical climates, and is occasionally epidemic in certain of the higher northern latitudes, as at Baltimore, Philadelphia and New York. It is most common in seaports, and on large bodies of water, but is occasionally found in inland situations. It differs materially from the endemial remittent of tropical climates, and is, of course, not merely an exalted form of the bilious remittent of such places. It differs from the endemial remittent of the West Indies, in its attacking strangers to such climates only. The natives, and even such as have been born or lived long in similar situations, are altogether exempt from its attacks; and, should the stranger survive the dangers of an attack, he remains free, for the most part, subsequently, though not exempt from the endemial remittent of the place. This immunity, however, may be forfeited by the stranger living for a year or two in a northern latitude: should the stranger escape for a year or two, he becomes acclimated, and is no longer liable to be attacked by yellow fever. This disease has been looked upon, by some, as contagious; but this notion is now altogether abandoned by far the greater part of the profession; and especially such as have had opportunities to observe its phenomena, and ascertain its habits for themselves. That it spreads rapidly sometimes, is admitted; but this is owing to the causes which make it an epidemic, and not to any contagious quality. This disease varies in its mode of attack, as well as in the violence of its symptoms. In almost every other febrile disease, as a general rule, the risk is in proportion to the violence of the symptoms; but the masked or insidious form of yellow fever, is most commonly the most difficult of management, and, consequently, the most dangerous. Hence the "walking cases" are almost sure to prove fatal. There are three modes of attack in yellow fever; and the phenomena of either may vary, as the remote cause may have been more or less active or concentrated. They may also be influenced by individual habits or constitutions, or by the force of the occasional or exciting cause; and hence we find it run its course rapidly sometimes; that is, in from two to five days, a part of the cases terminating in black vomit. In this form of the disorder, the symptoms are generally less ferocious, and less distinctly marked, though more certainly and speedily fatal; or it may run on to the fifth or to the seventh day; and though the sufferings are of a more acute kind, the danger is less, as more time is given for the application of remedies; or it may present, like a regularly-formed remittent, regular exacerbations and remissions. If it assume this form, it may run on to the ninth or eleventh day. The first form observes no very regular period of attack, though the evening is the most common. The second generally takes place after noon; and the third, most frequently in the morning. The mode of attack, however, is pretty generally marked by the same train of symptoms, differing more in force than in character, if we except the first, which often has the peculiarity of betraying itself by scarcely any outward signs, except weakness, slight headache, or nausea. This insidious character lulls the patient and his friends into a fatal security. The patient has been known to walk about until within a few minutes of dissolution. The unmasked or violent attack of yellow fever is, therefore, less to be dreaded than the seemingly mild form, as the derangement of the system is more palpable, though it is always highly dangerous. This disease differs in its attack from almost every other form of fever, as it is seldom ushered in by a well-defined chill, though the sensation of cold, and a reduced temperature of the skin, will remain sometimes a long time before reaction will take place. Much languor is always experienced; for the most part, intense headache, distress about the precordia, and the eyes are of a peculiar red. The heat of the skin is seldom great in the beginning, but soon increases in intensity, conveying to the mind the sensation of pungency. The pulse is rarely open and strong; indeed, it usually appears rather more feeble than natural to the inexperienced practitioner, which sometimes betrays him into dangerous errors. The pulse in this state is termed the *oppressed* or *depressed* pulse by authors; and, instead of requiring the aid of stimuli, as has been too often supposed, calls loudly for the proper use of the lancet. The face assumes a peculiar, or, rather, a specific flush, which is totally distinct from the redness of ordinary fever. This reddening gives a very marked character to the countenance, and can never be mistaken, by an eye experienced in this disease, for a symptom of common fever: on the contrary, it always denotes a high degree of yellow fever. The tongue is usually moist and clammy; but rarely dry, rough or red, in the commencement, though these conditions of this organ are sure to follow in a short time. The skin is dry and harsh, for the most part; though occasionally it is found wet, with hot perspiration. This sweat is sometimes early in its appearance, and, at times, extremely profuse in its quantity; but it neither abates the action of the heart and arteries, nor mitigates the local sufferings—as headache, pains in the limbs, or oppression in the lungs. It is therefore not critical, but, on the contrary, rather betrays malignancy. There is rarely so great an abatement of symptoms, at any period of the day, as to amount to a remission, though there frequently is an exacerbation that is every way alarming, from its intensity; and this may happen twice, or even thrice, in the twenty-four hours. When this happens, the disease proceeds, with hasty strides, to its fatal termination; for should not remedies at this time, especially bleeding, abate the severity of the symptoms very soon after their application, more fatal symptoms quickly supervene; the eye becomes more sad; lividity is added to the deep-toned color of the cheek; the tenderness is much increased by pressure over the region of the stomach; nausea and vomiting commence or increase; the patient tosses himself into every position; delirium ensues; the urine becomes intense in color, and small in quantity; the extremities lose their heat; the gums become swollen and livid; the tongue red, or brown, and dry; thirst insatiable; and the drinks rejected, perhaps, as fast as swallowed. After a continuance of these symptoms for a few hours, the system seems to make a compromise with the disease, and passively yields itself up to its ravages; for there is no diminution of the danger at this moment, though the system seems less morbidly excited; for if the suffering be less, danger is increased. Now the stomach gives way; the most tormenting nausea and thirst, with almost incessant vomitings, take place. The fluids discharged are, for the most part, nothing but the drinks which the patient has swallowed; for these, even in the beginning, are rarely tinged with bile. But a threatening change soon follows; the fluids become thicker, and somewhat ropy, and are now found to have mixed with them a flaky substance, of a dark color. These flaky substances, there is reason to believe, are portions of the villous coat of the stomach, detached, and made to mix with the ejected fluids, by the effort of vomiting. The urine, at this time, is usually very scanty, or may be even suppressed; the bowels are tardy, or yield a blackish, tarry-looking substance, of considerable tenacity. The whole surface of the body, with the exception, perhaps, of the abdomen, is colder than natural; sometimes dry, sometimes moist; the hands and feet deathly cold, mottled with stagnating blood; the pulse feeble, fluttering, or extinct; or it may be slow, composed, and might, by the inexperienced, be even pronounced natural. Sleep forsakes the patient, or he dozes, to suffer more; his respiration is hurried, or preternaturally slow. His mind may wander, but delirium is not a very usual symptom in yellow fever. Indeed, the patients, in this disease, often possess the entire use of their faculties to the very last moment of life. Some die most tranquilly, declaring, with almost their latest breath, that nothing ailed them; while others die in great agony. When this happens, it is generally when delirium is present, and when the brain, from sympathy, seems to sustain the great force of attack. The patient may now become more tranquil, from an evident mitigation of all the severer symptoms; and this short-lived truce gives rise, in the inexperienced, to hopes that are never to be realized; for now the yellowness of the skin, which gives its name to the disease, begins to show itself, and becomes the harbinger of the dreaded and fatal "black vomit." This matter is thrown from the stomach, sometimes in incredible quantities, and of various shades of color, from dark-brown to the color of coffee-grounds, or blackness. It is ejected with very little effort, and the patient, for the most part, denies the existence of pain. Black vomit, however, does not always precede death; it is occasionally absent. But when this is the case, its place is supplied by the eructation of prodigious quantities of gas, rapidly and constantly secreted by the stomach. The gums, and other portions of the body, at this time, yield considerable quantities of blood, which renders the aspect of the patient truly hideous. The teeth become incrusted with sordes; the tongue black and dry; the pulse preternaturally slow and feeble; or it may be, at the wrist, extinct; the skin and extremities cold; coma, or low, muttering delirium, takes place; sometimes convulsions; then death. The prognosis in this disease must always be regarded, even in its commencement, as unfavorable, though this fever is not inevitably fatal. If the disease have commenced in an open, undisguised form, the chance is increased; but if it attack insidiously, the danger is almost in proportion to the absence of prominent or decided symptoms. If the disease assume, or can be made to put on, a regular form, that is, have its remissions and exacerbations in pretty regular order, though the symptoms run high, there appears a better chance to increase the one and moderate the other. But, on the other hand, if the disease discover no tendency to regular remission, or if reaction be but feeble and transitory, the risk is greatly augmented. If the patient sigh deeply, immediately after waking, and before he have recovered the powers of speech, the presage is bad; or if he complain of much soreness and pain, without the part having any morbid appearance, it is equally unfavorable. Those whose arms become rigid seldom get well; and those who have an entire suppression of urine never recover. Black vomit is always a very unfavorable symptom, especially when attended by hiccough, but is not necessarily fatal, particularly in young people. The "puking of wind," as it is called, is perhaps as deadly a symptom as black vomit. On the other hand, should there be a general abatement of the symptoms, especially of headache, with a softened skin; a general and equally distributed warmth; less jactitation; diminution of thirst, without nausea or vomiting, and the tongue beginning to clean; less tenderness in the epigastrium; bilious fœcal discharges; a free flow of lighter colored urine (and particularly if it deposit a lateritious sediment); a moderate, and generally-diffused perspiration, after the abatement of the exacerbation,—the disease may be considered as less desperate, and as tending to a healthy solution. The pulse, in this disease, betrays, from beginning to end, less concern, if we may so term it, than in almost any other with which we are acquainted. Indeed, but little dependence is to be put upon it, if it alone be taken as a guide; for it has been known to resemble a pulse in health, when dissolution has been near at hand; while, again, it has been known to cease, yet the patient recover.—*Treatment.* The treatment of this disease is very far from being as efficacious or certain as its danger requires; yet it is not so fatal, under favorable circumstances, as might, at first sight, be supposed. In tropical climates, it rages among strangers almost exclusively; and these, for the most part, are of a description unable to procure the best means of mitigating suffering or averting danger. In northerly situations, where the disease is, as it were, accidental, the mortality, under the best circumstances, is considerably less, though still very much too great. We may attribute some portion of the mortality to the discrepancy in the views that have been taken of the habits and nature of the disease. Some suppose it contagious in a high degree: this infallibly increases the mortality, by causing the necessary means to be withheld from the suffering, under the apprehension of personal danger; while others look upon its nature to be the same as that of typhus, and fatally adopt a treatment conformable to such a view; and, consequently, thousands are sacrificed to a hypothesis. The opinion is now, however, daily gaining ground, that yellow fever is essentially an inflammatory disease, and one which requires a vigorous and strictly antiphlogistic plan of treatment. But neither a correct pathology, nor the best concerted means, will avail, if the proper time for their application be lost. To be successful in the treatment of yellow fever, no time must be spent in temporizing. Yellow fever, as has just been stated, must, agreeably to the best authorities, be looked upon as an *exquisite gastritis;* a fact that should never be lost sight of: it is for the relief of this condition of the stomach, almost exclusively, that remedies are to be sought. It has been mentioned, that the pulse, from its similated weakness, and the feebleness of reaction in its more dangerous forms, has misled the practitioner to the fatal use of stimulants. It is the depressed, or oppressed pulse, so called—a pulse that always acquires vigor by the abstraction of blood. The quantity to be taken at any given time, cannot well be defined; for this state of the arterial system may require the loss of a large quantity of blood to relieve it, or the pulse may become open and free by the abstraction of only a few ounces. The management of the bleeding must, therefore, be left to the discretion of the medical attendant. If the pulse rise, as it is wont to do under this condition of the system, by the loss of blood, its abstraction should be continued until it become soft under the finger. Nor can any rule be laid down for the repetition of the bleeding, but one—namely, that recourse must be had to it, whenever the system reacts with force, by which every symptom becomes aggravated, even if this occur several times in the twenty-four hours. It is mainly owing to not taking down the excess of action of the heart and arteries when it occurs, that fatal disorganization takes place so frequently; therefore, every paroxysm should be carefully watched, that no one may pass without having the force of the pulse abated, by the loss of blood; for it may be confidently said, that the system never reacts forcibly in this disease, when it will not bear the abstraction of blood, either generally or topically. If topical bleeding be resorted to, it must be from the epigastrium; therefore, either leeching or cupping must be the mode of abstraction. This state of the system is rarely found, however, after the expiration of eight-and-forty hours, unless the disease have been vigorously treated by previous blood-letting. Should this period have been lost, bleeding from the general system can rarely be successful: topical bleeding alone now promises relief; and this may be tried at almost any period of the disease, if the sensibility of the epigastrium remain active. As regards the feebleness of reaction, as just stated, we must not be mistaken in its cause, in the beginning of this disease; as it is almost sure to depend upon the *depressed state of the pulse*. For after blood has been taken in an appropriate quantity, the heat of the skin and activity of the pulse will both increase; but if stimulants be used, both will be diminished. But it is always proper, when reaction is feeble, the skin cooler than natural, and the extremities perhaps *cold*, but certainly preternaturally cool, to use *external* stimuli with a view of aiding the powers of the system in their efforts to produce a warmth upon the surface. Bottles or jugs of hot water, heated bricks, sinapisms, Cayenne pepper, &c., should be applied to the feet and legs, and used until a proper warmth be restored. The bowels should be freely opened, but not violently purged: for this purpose, eight or ten grains of calomel should be given immediately after bleeding, followed, in three hours, by a dose of castor oil, if it do not operate previously to the expiration of this time. During the whole disease, the bowels should be kept open by the milder purgatives, but especially by oil, or by injections; for purging is uniformly hurtful, unless it be on the decline of the disease, and after the liver has begun to secrete large quantities of bile, which requires to be carried off. The mildest drinks should be given during the whole attempt at cure, and these cold, almost always; that is, unless cold drinks be less acceptable to the stomach than tepid, which is sometimes the case. Ice swallowed frequently, in small portions at a time, is both acceptable and useful, and should never be withheld when it can be procured. All the drinks may be rendered cold by this substance; and these should consist of gum-arabic water, barley water, linseed tea, slippery-elm bark tea, &c. Drinks should always be given in small quantities at a time, lest the stomach reject them. If there be much sickness of stomach, attended by much tenderness upon pressure, the epigastrium should be leeched or cupped; and this may be followed by a blister if the nausea or vomiting continue. Should the headache be great after due depletion from the arm, the temporal artery may be opened, or leeches or cups be applied to the temples, behind the ears, and to the back of the neck. Under these circumstances, if the feet be cool or cold, they should be placed in hot water, with which is mingled a quantity of the flour of mustard, and the feet suffered to remain in it for fifteen or twenty minutes. This may be repeated, *pro re nata*. Fresh air should be admitted freely into the room; the bed clothes and body linen changed as often as practicable; light excluded, and noise prohibited. If there be much determination to the head, cold applications should be made to it, after reducing the quantity of hair, should this be thick. Partial heat may be reduced by sponging. Doctor Jackson, in his treatise on fever, recommends large bleedings, in the first eight hours of attack, even *ad deliquium animi*. This, in robust constitutions, and when the disease commences with high excitement, has been found very beneficial; but it rarely can be proper where the disease is of a highly malignant character, as is almost always the case where much indirect debility suddenly shows itself, and, consequently, where the powers of the system are inadequate to produce a quick and sufficiently powerful reaction. In this case, however, stimulation would be more quickly and certainly fatal than bleeding, even indiscreetly urged; for, by the former, you cannot fail to increase the inflammation of the mucous membrane of the stomach, which will necessarily augment the danger; while the latter only diminishes the power of reaction; therefore, by the first practice, the cause of the disease is increased; by the second, the effects of this cause are only augmented. For the first, there may be no adequate remedy; for the second, a remedy may be found: hence, when, in the early stage of yellow fever, recourse is had to internal stimulants, the case is almost uniformly fatal; whereas, bleeding, even when injudiciously employed, only depresses the system, which *may recover* by the aid of external stimuli; and the case is not as desperate as when stimuli have been thrown into the stomach during the state of active inflammation. In the case, however, under consideration, it is only an abuse of the proper remedy; for, if the abstraction of blood be judiciously made in this state of the system, the system, instead of becoming prostrate, will react promptly; for the pulse, in the beginning of this disease, is in a state of depression, as has already been explained, and not of *absolute weakness*; for there have been instances of recovery, as already stated, after spontaneous hæmorrhages from various parts of the body, but where the abstraction of blood from the general system by the lancet would certainly have proved fatal. Does not this flow of blood intimate to us the propriety of imitating it, by the application of a leech or two to various parts of the body? One thing is very certain in the generality of cases of yellow fever, that when bleeding, either general or topical, fails to afford relief, stimulants never succeed: therefore, when the time is past for both general and topical bleeding, it is in vain to attempt the relief of the patient by the exhibition of stimulants. By doing little or nothing at this time, the recuperative powers of the system, if left to themselves, may restore the patient; for all that art can do, at this time, is not to thwart or prevent their efforts. We must, therefore, be rather the spectators of the conflict of the system, than active agents against the disease; taking care, however, constantly to remove, as much as it may be in our power, any obstacle that may appear to interfere with the general progress to recovery, as an irregular condition of the bowels, of the stomach, of the state of air, &c. &c. Nausea and vomiting are troublesome conditions of the stomach, and its relief should be attempted by leeching, cupping and blistering, over its region, by Seltzer water, the effervescing draught, lime water and milk, &c., but never, or but very rarely in the beginning of the disease, by stimulants: after decided marks of debility, clove tea, mint tea, or strong coffee, with mustard to the epigastrium, may be tried. When black vomit has come on, the spirit of turpentine, with the oil of cinnamon, in thirty drop doses, has been certainly of temporary use, and occasionally of permanent benefit. Thirst may be abated by small quantities of very cold water, or by frequently swallowing small portions of ice, as directed above: sometimes the *feeling* of the stomach is in favor of warm drinks; when this is the case, the craving or instinct should be indulged. Hiccough is sometimes extremely distressing in this complaint. Camphor, in doses of from five to ten grains, will sometimes relieve it. Should it offend the stomach, it may be given very advantageously in a gill of rich flaxseed tea, and thin starch, or mucilage of gum-arabic, as an enema. The utmost attention must be constantly paid to the patient by the nurse: he should have the luxury of fresh air constantly, and the frequent renewal of clean, fresh body linen and bed clothes.

YORCK, GENERAL. (See *York*.)

Z.

ZAARA. (See *Sahara*.)

ZARAGOZA. (See *Saragossa*.)

ZEBAOTH. (See *Sabaism*.)

ZEID. (See *Seyd*.)

ZETLAND ISLES. (See *Shetland*.)

Witherspoon, John, D. D., LL. D., president of the college at Princeton, New Jersey, was born in Yester, Scotland, February 5, 1722, and educated at Edinburgh. He was settled in the ministry, first at Beith, and afterwards at Paisley, and became one of the most distinguished of the Scottish clergy for talents and influence. He published while there his Characteristics, and became the leader of the orthodox part of the clergy. He was invited to remove to several distinguished cities in Europe, but, at length, accepted an appointment to the presidency of the college at Princeton, New Jersey, and came to that state, with his family, in 1768. The war of the revolution dispersed the students, and left him at leisure to engage in civil employments, to which he was almost immediately called. He was elected a member of the convention which formed the constitution of New Jersey, and, in 1776, was appointed a member of congress, and retained a seat in that body till the conclusion of peace. His name is affixed to the Declaration of Independence, and the Articles of Confederation. After the war, the college was re-opened, and he returned to his duties there. During the last two years of his life, he suffered the loss of his sight. He died November 15, 1794, in the seventy-third year of his age. He possessed a mind of great vigor and activity, of uncommon shrewdness and humor. His learning was very various and extensive, and his discernment of character singularly keen. His preaching was characterized by perspicuity and energy. He was an able politician, and a zealous friend of liberty, and a highly amiable, amusive, and instructive companion. His works have been published in 4 vols., 8vo.

Note referred to on page 502 of this Volume.

Since this volume was put in type, we have received the work of Messrs. De Beaumont and De Toqueville on the Penitentiary System in the United States (Paris, 1833). These gentlemen were sent by the French government to inquire into the state of the American prisons, and to give a report on the systems here adopted. Their work (a translation of which is now making in this country) contains, as may be supposed, much valuable information on the Auburn system, as well as on that practised in the Eastern penitentiary, near Philadelphia; and the report on the health of the convicts in solitary confinement, according to the Pennsylvania plan, is highly satisfactory.

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